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PC

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Volume 1
Number 3
July 1987
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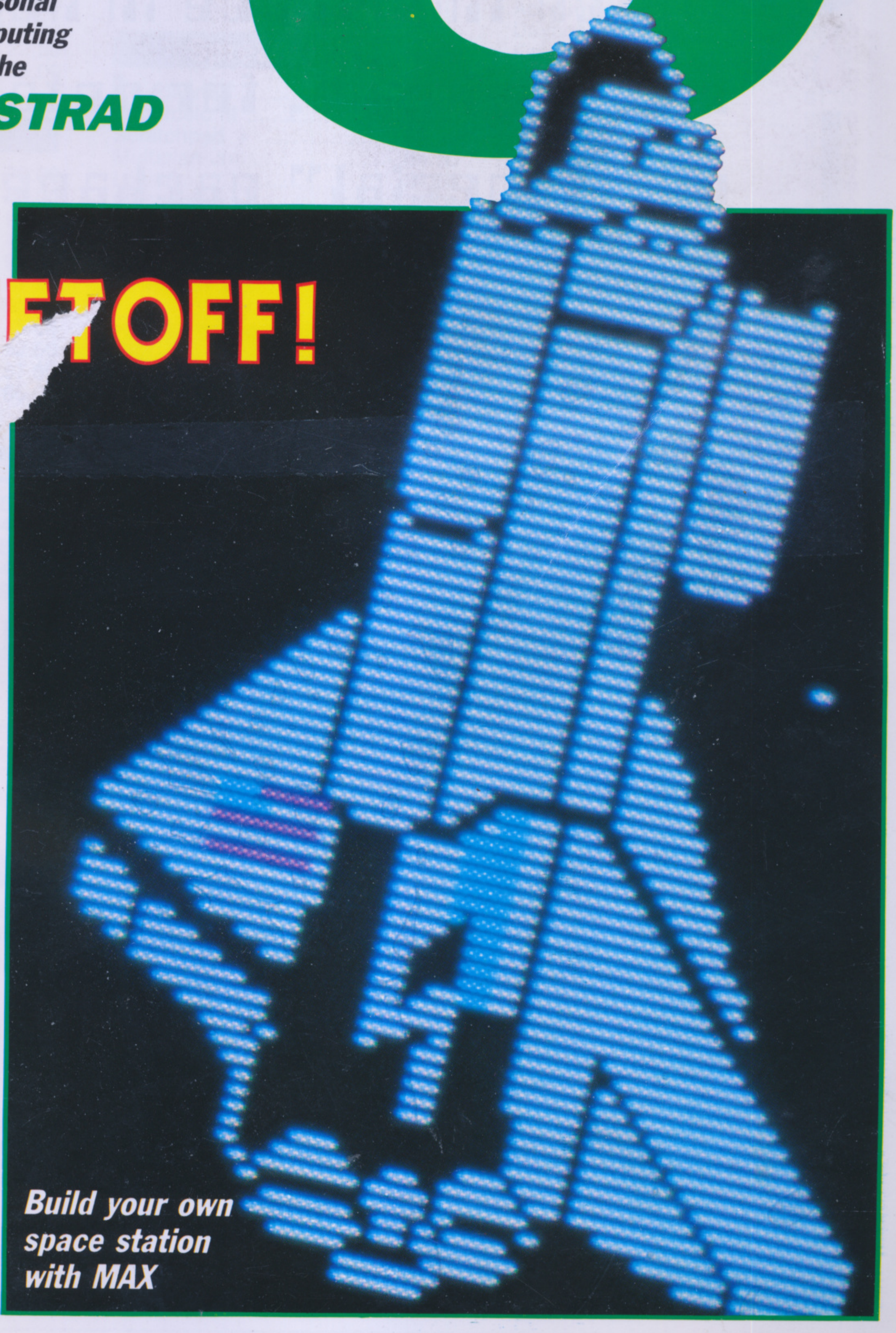

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Pseudocode 25

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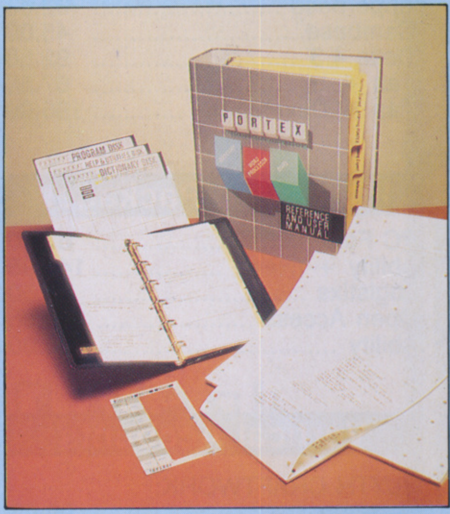

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SILENT SERVICE
UNSHIP
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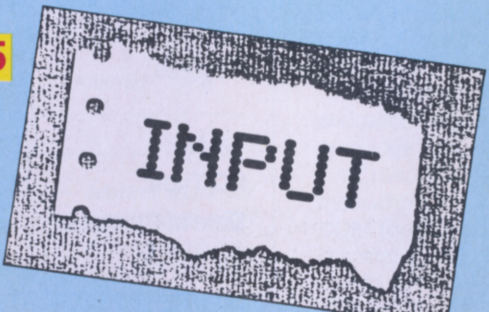

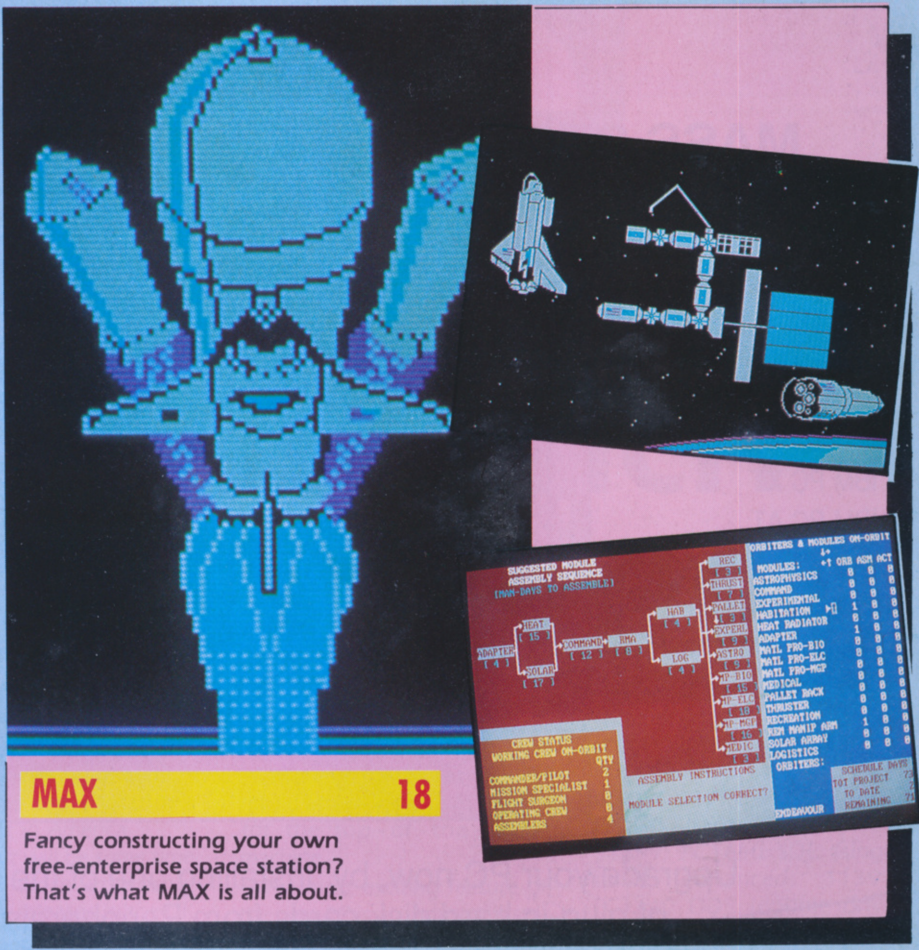

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SUGGESTED MODULE
ASSEMBLY SEQUENCE
[MAN-DAYS TO ASSEMBLE]

ADAPTER [ 4 ]  HEAT [ 15 ]  SOLAR [ 17 ]  COMMAND [ 12 ]  RMA [ 8 ]
HAB [ 4 ]  LOG [ 4 ]
REC [ 3 ]  THRUST [ 7 ]  PALLET [ 3 ]  EXPERL [ 9 ]  ASTRO [ 9 ]
MP-BIO [ 15 ]  MP-ELC [ 18 ]  MP-MGP [ 16 ]  MEDIC [ 3 ]

CREW STATUS
WORKING CREW ON-ORBIT
                      QTY
COMMANDER/PILOT         2
MISSION SPECIALIST      1
FLIGHT SURGEON          0
OPERATING CREW          0
ASSEMBLERS              4

ASSEMBLY INSTRUCTIONS

MODULE SELECTION CORRECT?

ORBITERS & MODULES ON-ORBIT
                     ↓→
MODULES:             ←↑  ORB ASM ACT
ASTROPHYSICS              0   0   0
COMMAND                   0   0   0
EXPERIMENTAL              0   0   0
HABITATION           ▶▯   1   0   0
HEAT RADIATOR             0   0   0
ADAPTER                   1   0   0
MATL PRO-BIO              0   0   0
MATL PRO-ELC              0   0   0
MATL PRO-MGP              0   0   0
MEDICAL                   0   0   0
PALLET RACK               0   0   0
THRUSTER                  0   0   0
RECREATION                0   0   0
REM MANIP ARM             1   0   0
SOLAR ARRAY               0   0   0
LOGISTICS                 0   0   0
 ORBITERS:
                   SCHEDULE DAYS
                 TOT PROJECT    73
                   TO DATE       2
ENDEAVOUR          REMAINING    71
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Fancy constructing your own free-enterprise space station? That's what MAX is all about.

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What to look out for in databases – before you part with your money!

Survey 34

We cut through the plethora of databases for the Amstrad PC1512 and assess the leading contenders.

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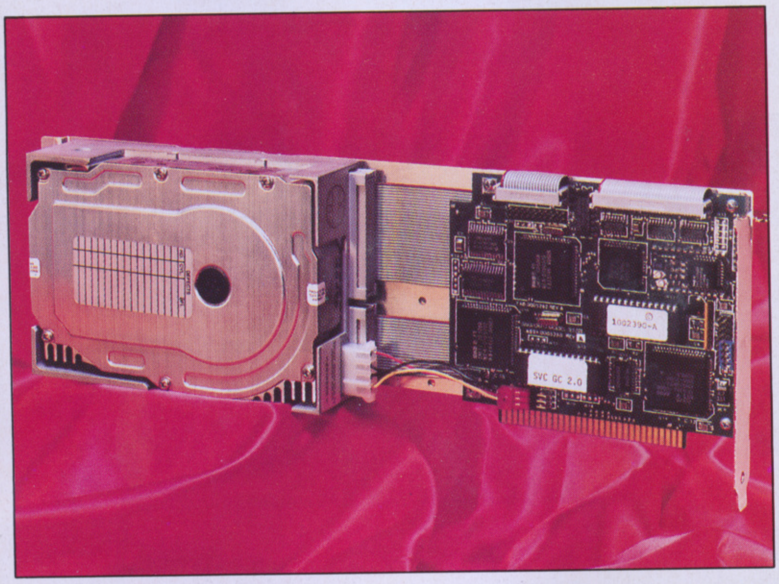

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PC News

PC IS IN THE LEAD

LATEST surveys of the computer market both here and abroad spell out more good news for Amstrad.

The PC1512 captured almost 40 per cent of the UK business sector in the first three months of this year – double IBM's share – according to leading market research firm Romtec.

Another survey, this time by International Data Corporation, also reveals that Amstrad was the largest volume shipper of micros in Europe last year.

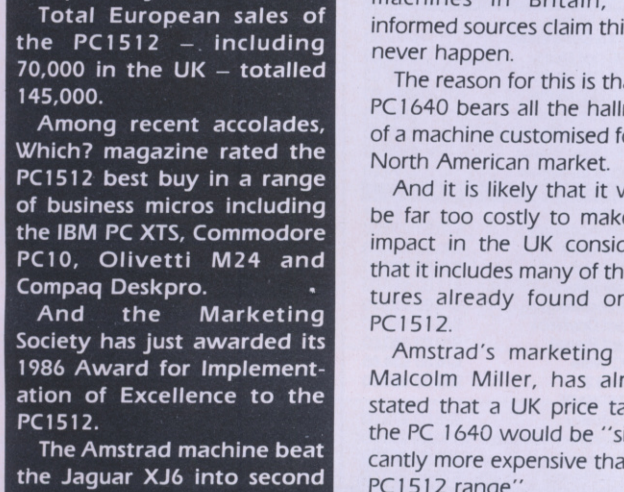
Total European sales of the PC1512 – including 70,000 in the UK – totalled 145,000.

Among recent accolades, Which? magazine rated the PC1512 best buy in a range of business micros including the IBM PC XTS, Commodore PC10, Olivetti M24 and Compaq Deskpro.

And the Marketing Society has just awarded its 1986 Award for Implementation of Excellence to the PC1512.

The Amstrad machine beat the Jaguar XJ6 into second place in the consumer durable section of the awards.

Alan Sugar was runner-up as the Marketing Society's Personality of the Year for the second year running.



Market share for first quarter 1987 according to Romtec

USA launch for new PCs

AMSTRAD has unveiled a new range of sophisticated PCs – the 1640 series – aimed at capturing the top end of the clone market in America.

However it will be some time before the more expensive machines are released in the UK – if ever.

For although Amstrad has suggested early next year as a possible launch date for the machines in Britain, some informed sources claim this may never happen.

The reason for this is that the PC1640 bears all the hallmarks of a machine customised for the North American market.

And it is likely that it would be far too costly to make any impact in the UK considering that it includes many of the features already found on the PC1512.

Amstrad's marketing boss, Malcolm Miller, has already stated that a UK price tag for the PC 1640 would be "significantly more expensive than the PC1512 range".

What is more likely to happen – according to information gained by PC Amstrad – is that the company will launch a PC AT clone in the UK in the near future to be marketed in tandem with the PC1512.

Meanwhile the entry level PC1640 in the States will be priced at $899, rising to $1,999 for the top-of-the-range machine.

The most exciting feature of the new PC is an industry first – a Multi-function Internal Graphics Adaptor (MIGA) built into the motherboard.

It is the MIGA which allows for the connection of three new monitors from Amstrad – so seen as effectively offering "three computers in one".

However the MIGA will in fact put the new machine at a disadvantage to the PC1512 by eliminating the latter's 16-colour CGA mode.

Interestingly enough DOS Plus is not offered even though GEM is included in software worth $500 bundled with each new PC1604 sold in the US.

First comment on Amstrad's new PC range came from Vernon Moore, president of Vidco, Amstrad's distributors in the States.

"It is the most significant computer introduction in terms of performance and price in recent years", he said.

"The PC1640 offers the market exactly what it wants, but at a fraction of the cost of some of the industry leader products".

Details of the PC1640 range and prices as announced in the States are:

PC1640 SDM (single disc drive monochrome) $899; PC1640 DDM (double disc drive monochrome) $1099; PC1640 HDM (20Mb hard disc drive, monochrome) $1,499; PC1640 SDC (single drive, colour) $1,099; PC1640 DDC (double drive, colour) $1299; PC1640 HDC (20Mb hard disc, colour) $1699; PC1640 SDE (single drive, enhanced) $1399; PC1640 DDE (double drive, enhanced) $1599; PC1640 HDE (20 Mb hard disc enhanced) $1999.

Enhanced monitors

THE revolutionary Multi-function Internal Graphics Adaptor (MIGA) built into the PC1640 range opens the machines up to three new monitors from Amstrad.

The enhanced graphics monitor will support 16 colours from a choice of 64 at a resolution of 640 x 352 pixels.

A monochrome monitor for the range is a "paper white" 14in model using the industry standard MDA or Hercules MGA modes.

It supports 720 x 348 Hercules graphics and the MDA text in 9 x 14 dots per character giving the effect of letter quality type on paper.

It also has EGA mode, providing the ability to support the two high resolution graphics standards at a low cost in a resolution of 640 x 350 pixels.

The RGB colour monitor for the PC1640 supports industry standard CGA software, displaying four colours.

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PCA6

PC News

Summer club deal

THE official Amstrad User Club has joined forces with giant High Street chain Currys in a special summer promotion.

Until the end of August anyone buying Amstrad equipment from one of Currys' 530 stores will automatically become a member of the Club for a free introductory period of three months.

They will get all Club benefits including discounts and savings on a whole range of Amsoft and other software and ancillary equipment.

The deal is part of a major recruitment drive by the 25,000-member Club (091-567 3395) and ties in with Currys' major summer promotion.

Planning package

PRODUCER of the Uniman MRP11 manufacturing control system, Uniman Systems, has a new production schedule planning package for the Amstrad PC1512.

Uniman can handle such jobs as sales forecasts, production planning spreadsheets, resource usages and costs, rough cut capacity planning and detailed production plans.

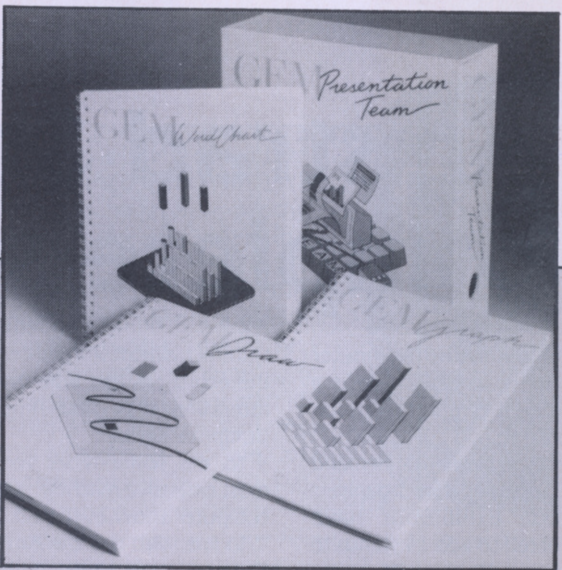
The package is available for £465 from Uniman Systems (0533 858782).

Hard disc back-up

AFTER the success of its Kudos 20, Kudos Systems has now launched Kudos Hard Disc 30, a 30Mb internal hard disc subsystem for the PC1512.

The package contains a Seagate ST238 hard disc, Western Digital new half size controller card, manual, cables and a utility disc.

Price £299 from Kudos (01-200 6511).



The Gem Presentation Team

1st Word Plus for PCs

IN a deal with Cambridge software house GST, Digital Research is to market the new Gem 1st Word PLus on IBM PC compatibles.

The program employs the Gem graphics user interface to maximum advantage, says Digital (0635 35304), so that the product is suited to novice and experienced users alike.

Drop-down menus simplify the editing functions and text formatting and scrolling through documents is quickly and simply achieved.

Version 2.0 will be out in September.

Digital is also releasing the Gem Presentation Team, an all-in-one package for producing business presentations.

All types of graphic information can be generated and users can create complex composite graphics merging numeric, tabular, graph and line drawings on a single page.

It bundles Gem WordChart, Gem Graph, Gem Draw Plus, Gem Draw Business Library and Gem Desktop. Price £345.

IBM users hook up a PC1512

WHISPER it gently, but the IBM User Group is hooked on the Amstrad PC.

The Group has bought a 3Com Ethernet network from distributor Logitek and one of its seven terminals is . . . a PC1512.

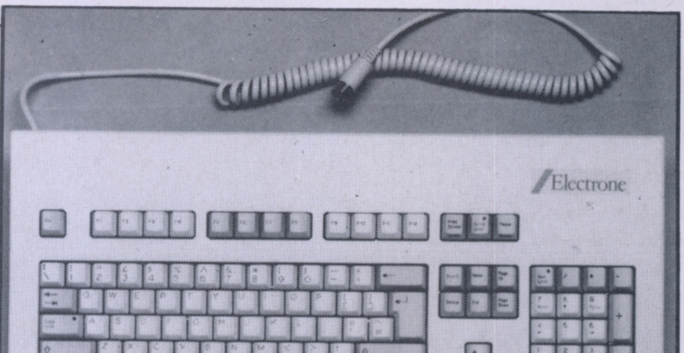
Main task of the network is to maintain the Group's membership database at its head office in London.

The system enables users to view or edit the records for 7,000 members and access word processing files from any computer on the network.

And the Amstrad appears to have fitted in extremely well with its high-priced IBM neighbours.

''Our way of life quickly changed'', said Group vice-chairman Alan Jay. ''No more floppy discs floating round the office in what has been dubbed a frisbee net – and no more people forever trying to get on to the one computer with the up-to-date version of our membership database''.

Enhanced keyboard



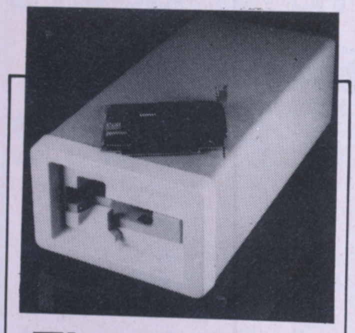
AN enhanced keyboard for the PC1512 is now available from Electrone of London (01-429 2433).

It has an IBM-style layout and connects directly to all PC1512 models.

The 101-key device claims a number of advantages over a standard keyboard including separate cursor keypad active in all modes, separate numeric keypad, and 12 programmable function keys.

An optional software package called Elkey allows the keys of the 101 to be programmed for any typing layout or with strings or macros.

Price of 101 is £129 and Elkey software £35.



The 25Mb back-up

A TAPE streamer back-up specifically designed for the PC1512 has been introduced by First Software.

Cipher 1525-CT is a cartridge back-up system which provides up to 25Mb of storage on standard quarter inch tape.

The 1525-CT saves or restores data at a rate of approximately 1Mb per minute, so an entire 20Mb PC disc can be backed up in a single 20 minute operation.

The system is driven by Cipher's own software which provides context sensitive on line help and error correction.

Data is saved on a file-by-file basis, rather than a mirror image technique used on some streamers, which means files can be restored selectively if required.

Price: £499 from First Software (0256 463344)

Amstrad Show is complete sell-out

THE July Amstrad Computer Show at Alexandra Palace is a complete sell out on the exhibitor front.

Such has been the demand from companies that organisers Database Exhibitions have been forced to add 14 stands to the original 80 planned.

Even this has left more than 20 would-be exhibitors on hold in the vain hope that some firms may drop out before the opening of the three day event on July 10.

''We've tried our best to accommodate people but unfortunately a number are going to be disappointed'', says Derek Meakin, head of Database Exhibitions.

And this despite the fact the organisers had already moved the venue from the Novotel to Alexandra Palace in order to be able to provide an additional 50 per cent of exhibition space.

However it was still to fall short of meeting the overwhelming demand. Part of this has come from the companies who have only recently jumped on the Amstrad bandwagon.

In fact almost 25 per cent of the exhibitors this time will be attending their first Amstrad Computer Show.

So the scene is set for the most extensive machine specific computer show ever held.

In line with this the Amstrad Theatre – the show within a show – will have its seating capacity doubled.

Both Amstrad and the Official Amstrad User Club will be putting themselves in the firing line in the theatre for question and answer sessions.

The 25,000 member club will also provide a round-the-clock technical advice service on its stand and non-stop demonstrations of the latest products.

Personal Systems, Precision Software, Sagesoft, Electric Studio, Arnor and Sandpiper will be among the leading suppliers with a major presence at the show.

''As advance ticket sales have never been heavier, this is shaping up to be the show of shows'', says Derek Meakin.

● *Cut-price show tickets: see Page 17.*

Summer sales get a boost

AS sales of the Amstrad PC1512 ''instant office'' bundle got off to a steady rather than spectacular start, the company looks set to reap a double reward.

The offer of a twin floppy drive mono PC with DMP3000 printer, WordStar and SuperCalc for £699 during June, July and August should keep the cash registers jingling merrily through the traditional summer doldrums.

And significant sales would help reduce stocks in time for a launch of the strongly rumoured PC2512 in the autumn.

Amstrad is said to be working on this IBM AT compatible 80286-based PC, and if the instant office bundle with its £150 saving sells well it will create the necessary shelf space for the new machine.

Dealers and distributors canvassed by *PC Amstrad* said it was too early to give sales figures for the instant office bundle, but most believed it would be a successful marketing tactic.

''This is one of the best cures for the traditional summertime blues in the computer industry that we've seen to date'', one of them told[2] PC Amstrad.[1]

''It's good news for both us and the customer – £150 off a complete PC system can't be bad''.

Getting into print faster

A DESKTOP publishing system designed around the Amstrad PC1512 is being marketed by AC Interactive.

It comprises a PC1512 20Mb mono hard disc system, 2Mb turbo laser card, a Canon CX engine laser printer, Xerox Ventura Publishing software and costs £4,895.

As the turbo laser card bypasses the standard interface on the laser printer it is possible to print a full A4 page of graphics at 300 dpi resolution with unparalleled speed, says AC Interactive (0926 313345).

It is also possible to connect a second computer to the laser printer through its standard printer port, achieving a two computer system, one for desktop publishing and one for standard printing of text and graphics.

Normally when using a serial port the computer transfers data at a rate of 9,600 bps, but with the turbo card that is increased to 1,800,000 bps.

PRUNED

A CUT DOWN version of its Samna Word IV word processing package for the Amstrad PC has been released by Samna.

Priced at £99, Samna One Word features mail merge, line draw, direct typing of labels, landscape printing and integration of text with graphs.

''Although it is a powerful package, should our customers eventualy need more features they can upgrade quite easily to Word IV or Plus IV'', said Diana Claridge of Samna International (01-587 1121).

PC News

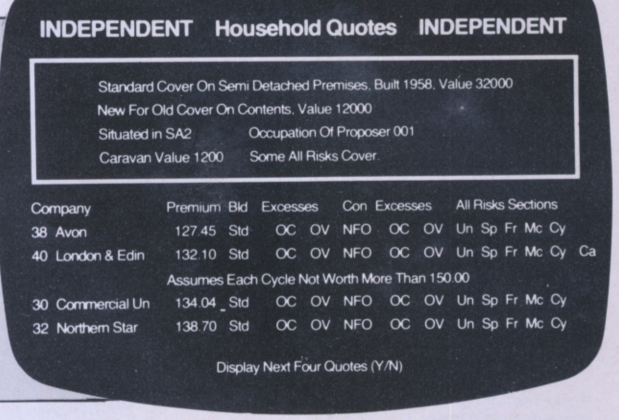
SOFTWARE house Independent Systems has chosen the PC1512 on which to launch the first micro-based home insurance quotation facility.

Managing director Tony Gibson says by making software available on the Amstrad PC the number of computer systems in smaller brokerages will double over the next year.

"With competition fierce and insurance rates constantly changing, it is anticipated that computerised quotation systems will have a significant impact in the high street", he said.

"Customers will have the opportunity to see at a glance what is available on the market and compare premiums.

Prices for the package start at £500. Independent Systems (021-550 8887) provides an update service on disc



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INDEPENDENT   Household Quotes   INDEPENDENT

      Standard Cover On Semi Detached Premises, Built 1958, Value 32000
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Company            Premium  Bld  Excesses     Con  Excesses   All Risks Sections
38 Avon             127.45  Std    OC  OV  NFO    OC  OV      Un Sp Fr Mc Cy
40 London & Edin    132.10  Std    OC  OV  NFO    OC  OV      Un Sp Fr Mc Cy  Ca
                   Assumes Each Cycle Not Worth More Than 150.00
30 Commercial Un    134.04_ Std    OC  OV  NFO    OC  OV      Un Sp Fr Mc Cy
32 Northern Star    138.70  Std    OC  OV  NFO    OC  OV      Un Sp Fr Mc Cy

                    Display Next Four Quotes (Y/N)
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Prices lopped

TO coincide with Amstrad's bundling of the PC1512 with printer and software at a £150 saving, Sagesoft has cut the price of its payroll and accountant packages.

New price of the bundled software is £199, a saving of £49, but the offer is only open until the end of August.

"The Amstrad 'instant office' is incomplete without Sage accounting software", says David Goldman, managing director of Sagesoft (091 284 7077).

Sage Macro Set, a programme containing 101 pre-set macros for use with Lotus 123 and compatible spreadsheets, has been released. It costs £49, or bundled with PC Planner, a full Lotus 123 compatible spreadsheet, £99.

Mini memory

A FLAT plastic data storage system the size of a credit card has been released for the PC1512 by Viglen (01-843 9903).

A battery-backed IC memory chip capable of storing up to 2Mb of data has been built into the memory cards.

Prices: £99.95 for the interface and from £15 for the cards.

PC aid for the blind

BLIND and other visually handicapped people are catered for on the Amstrad PC by a new package.

Dotmaster has been developed for the transcription of text into Braille.

Dr Ian Kemp of Cardiff University (0222-874000) explained that because of the complexity of the Braille system, blind people can face very long delays in obtaining material.

"Only a limited range of publications which sighted people take for granted are available in Braille", he said. "Most Braille readers have to rely on the services of voluntary organisations, prisons and religious groups for transcriptions".

Dotmaster can use text files from a number of word processing packages and is compatible with a range of Braille printers.

A feature of the package is an on-screen editor which displays the text and the Braille simultaneously and enables an operator with a knowledge of the system to insert or delete characters or words.

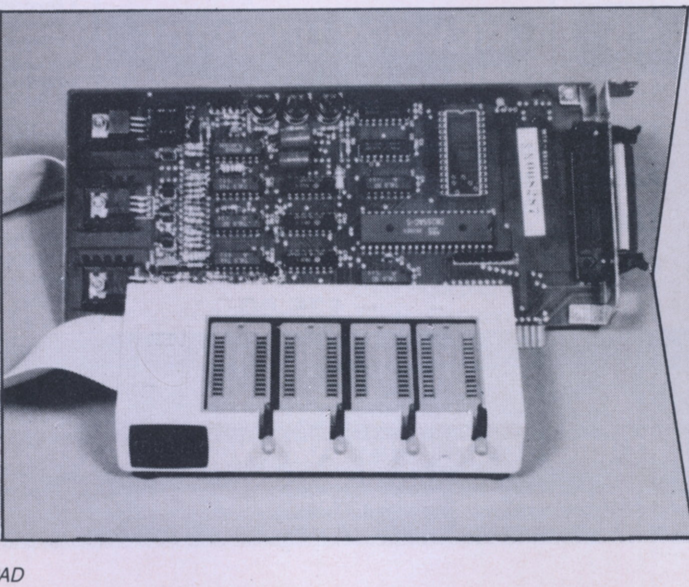
The rest of the package is an intelligent rule-based system which any operator can use to produce very high quality Braille from ordinary typed text.

The complete system costs £200. Interfaces to word processors and printers cost £100. The screen editor is sold separately for education or transcriber training at £100.

The PC version was developed in collaboration with Pia Ltd, a typesetting cooperative based in Gwent.

The group has interfaced the package with its typesetting software, and is using it to produce Braille copies in parallel with its text processing.

Pia has used Dotmaster to produce the Braille version of You in Mind, a health education booklet which was written to accompany the BBC Television series of the same name.



AN eprom programming card for the PC1512 has been released by Mutek.

It is capable of programming up to four eproms simultaneously, handling all eprom types from 2716 to 27512.

The software provides menu driven control of the unit, and allows the card to load data from a disc file or master eprom.

The four 28 pin textool zif sockets are connected via cable to the board, which allows the socket to be conveniently to hand.

Price: £194 from Mutek (0225 743289)

Evesham Micros

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AMSTRAD 1512

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Buy a 1512 and a printer from us and we will give you Tasword PC (word processing program) and 25 blank disks absolutely free of charge (or equivalent value off software of your choice).

Evesham 30MEG 1512s

If you want a hard disk model we can provide some interesting alternatives !

Twin floppy with 30meg hard card	
Mono	**£1069.00**
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HARD DISK

30meg for 20 price

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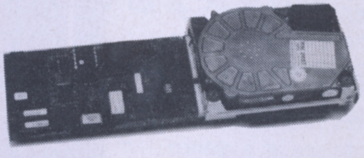
Microscribe 30meg hard card, simple to fit, low power consumption, the ideal way to give your 1512 the luxury of hard disk.



- ★ **Simple fitting in expansion slot**
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PRINTERS

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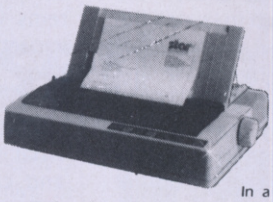
THE **star** PRINTERS FOR BUSINESS

NL-10

***WHICH* MAGAZINE BEST BUY**



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- **Tractor feed built in**
- **"Front Panel" mode selection**
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- **120 cps draft and 30 cps NLQ**

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Automatic cut sheet feeder available as an option for **£63.25**

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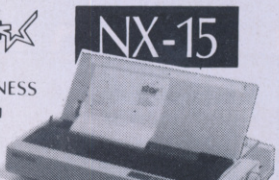
NX-15



- **Elite and proportional NLQ**
- **4K buffer**
- **Combined IBM/Epson interface**

Wide carriage version of the NL10, similar features and same high quality with 134 column capability.

Only **£349.00**

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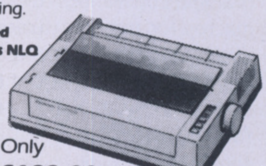
- **120 cps draft and 24 cps NLQ**
- **Epson/IBM compatible**
- **Wide range of print styles**



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V2.0

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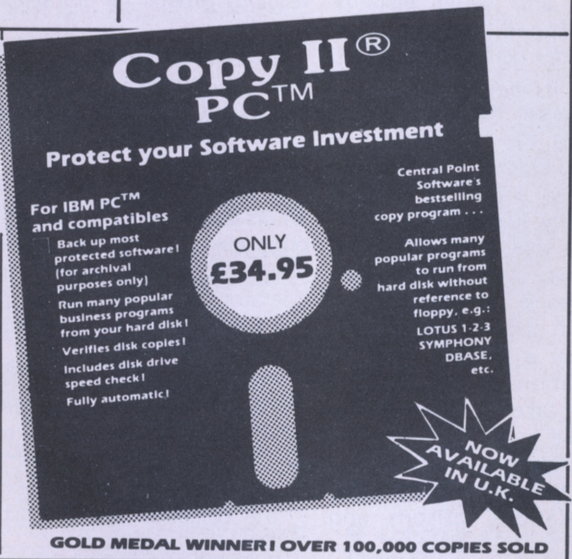
ONLY **£34.95**



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This kit with **ultra detailed fitting instructions** will allow you to expand the memory of your 1512 to 640K. That extra memory is really useful when using GEM and it really is straight forward to fit.

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PC News

Kuwait coup

A NEW PC1512 marketing effort in the Middle East has been rewarded with a major breakthrough.

Eighty machines, along with Amstrad DMP3000 printers and associated equipment, have been installed for the Ministry of Education in Kuwait.

The deal was achieved against tough opposition from larger rival companies by Nottingham-based Amstrad distributor Al-Tukhaim Micro Computer centre.

Marketing manager Howard Shortland told PC Amstrad: "This is just the start of a major sales drive to promote the PC1512 in the Middle East".

The company's efforts are being boosted by its position as a leading producer of bilingual and Arabic conversion systems for Amstrad micros.

Get Smart
AMSTRAD PC1512

TOASTING A SMART IDEA

IT was time to get smart when Amstrad dealer and software consultancy Software Support opened its new premises in Sale, Cheshire.

"Smart is the best integrated software available, and as it is being updated constantly will remain so for some time", said Simon Allen, principal partner of Software Support (061-962 9998).

"We have now been appointed the only authorised dealer and training company for the North of England and Scotland, so we thought it would be a good idea to allow businesses to assess for themselves Smart's powerful capabilities.

"And as we are also authorised Amstrad dealers we took the opportunity to present the PC1512 range which we are heavily involved in promoting at the moment".

Pictured is (seated) Mark Lane, director of Stockport Chamber of Commerce, who opened the new premises.

DTP gets its own show

AS rumours of an impending Amstrad entry into the desktop publishing arena gain strength, a prestige showcase to reflect the growing importance of DTP technology has just been announced.

Database Exhibitions is organising the Desktop Publishing Show 1987 from October 15 to 17 at London's acclaimed Business Design Centre.

The show is being sponsored by Pira, the UK technology centre for the printing and publishing industries.

As well as providing a full seminar programme at the event, Pira will also supply expertise for a User Clinic where visitors' DTP queries will be answered.

With projected DTP sales in Britain of £300 million in 1988, the show is intended to convey the message that personal computers are transforming the way people communicate in print – whether linked to a low-cost laser printer or sophisticated typesetting equipment.

The event will set out to attract visitors who are involved in the production of reports, brochures, newsletters, newspapers and magazines – either in-house or as service companies.

It also seeks to illustrate to management currently evaluating DTP the full spectrum of available equipment and its advantages.

"The show will not only mirror the revolution that has been taking place in the world of print, it will also help shape its future", said Derek Meakin, head of Database Exhibitions.

Industry observers believe Amstrad will be the next big name to join the desktop publishing revolution.

Reports in the computer trade press say the company will launch a PC-based desktop publishing system later this year.

It is expected to be designed around an 80286 version of the Amstrad PC, using either Fleet Street Publisher from Mirrorsoft or Gem Desktop Publisher from Digital Research.

Amstrad watchers say a new entry level hard disc PC bundled with high quality laser printer and software could provide a complete DTP system for about £3,000 – two-thirds the price of similar systems.

Labels system launched

FOLLOWING the release of the Amstrad version of its Addressbook mailing list management programme, Decision Technology has announced its Labelmaker II printing system for the PC1512.

It is a complementary product to Addressbook, and although both can be used to produce labels, it is aimed at product related labelling applications. One option allows the inclusion of barcodes on labels.

System requirements are an Amstrad with twin disc drives or a fixed disc.

Prices: £140 for Labelmaker II and £140 for the barcode option, from Decision Technology (01-979 5533).

MANAGED WITH EASE

Peter Jackson gives Superbase Personal his personal attention

Precision Software
Superbase™
PERSONAL
RELATIONAL DATABASE SYSTEM
for use with AMSTRAD PC1512 and GEM SOFTWARE
Super

SUPERBASE database manager from Precision Software has a long and distinguished history, starting as one of the first truly powerful database managers for the then rapid-selling Commodore 64 home computer. Now the growing Amstrad market is the target, with a version called Superbase Personal for the PC1512.

It really is an Amstrad version, because it won't run on any real IBM PCs or other compatibles, and it takes full advantage of the user-friendly nature of the Gem software provided free with the PC1512.

Pull-down menus, pop-up file selection boxes, and pictorial icons for control functions are all used along with the Amstrad mouse to make Superbase Personal a 'point-and-click' program that should be easier to control than the text and command based approach of most other PC databases.

In fact, Precision Software has gone even further in its search for ease of use. Many of the main controls of the database are permanently displayed on screen and actually mimic the play, rewind and fast-forward buttons of the familiar and easily-controllable video or tape cassette recorder.

As with other Gem applications, loading the program from the Gem desktop produces a main screen display looking pretty much like the desktop itself. The familiar menu bar is at the top, with, in this case, the names Project, Record, Process, Set and System heading the pull-down menus of database commands.

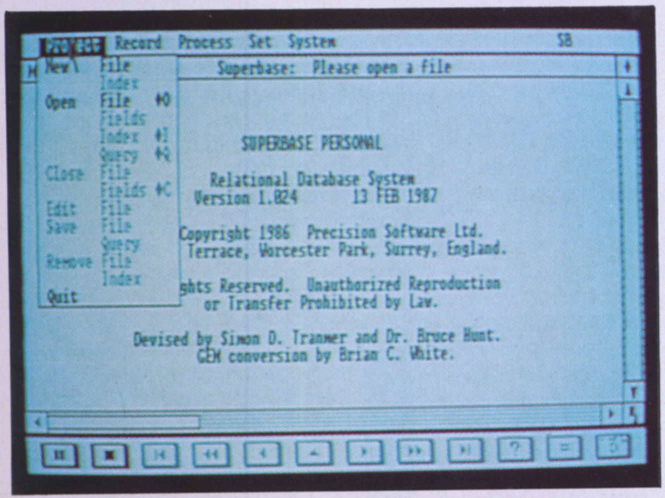
The video-like controls are in a bar at the bottom, and the program asks for a file name to be entered in a standard Gem dialogue box placed at the centre of a typical Gem window filling the rest of the screen space.

Typing a name in this box either opens a file with that name if one exists on the current disc, or creates a new file of that name. Interestingly, the Superbase program loads entirely into ram and stays there until the user Quits. This means that it is feasible to run the program on a single-drive PC1512. After loading the program an entire blank disc can be used for data files, which is plenty of space for most database applications.

Following through the creation process, the fields making up each record in the new file – the areas that will accept the entered data – must be specified. There are four types of field in Superbase, called text, numeric, date and external.

The first three are self-explanatory, and

Turn to Page 16 ▶


Project
Record
Process
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System
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New
File
Index
Open
File
Fields
Index
Query
Close
File
Fields
Edit
File
Save
File
Query
Remove
File
Index
Quit

```
Superbase:  Please open a file

SUPERBASE PERSONAL

Relational Database System
Version 1.024       13 FEB 1987

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Terrace, Worcester Park, Surrey, England.

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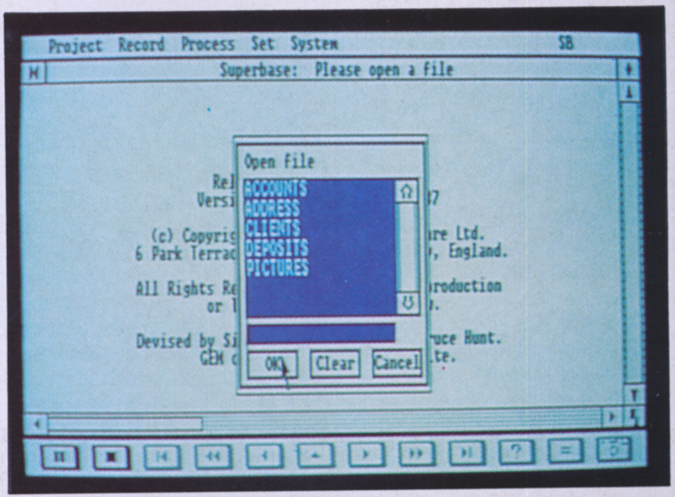
Devised by Simon D. Tranmer and Dr. Bruce Hunt.
GEM conversion by Brian C. White.
```

Figure I: Superbase opening screen


Project
Record
Process
Set
System
SB
Open File
ACCOUNTS
ADDRESS
CLIENTS
DEPOSITS
PICTURES
OK
Clear
Cancel

```
Superbase:  Please open a file
```

Figure II: Opening a file

◀ **From Page 15**

need to be specified so that Superbase can index and sort its files correctly. If these distinctions were not made the number 12 could be treated as a combination of the character '1' and the character '2' rather than a number that can be manipulated arithmetically.

The interesting field type is 'external'. Each file record with an external field is linked to a complete external file of data, so that a file with 36 different records would have each one associated with a separate file on disc.

These external files can be graphics, designs or pictures designed with Gem Paint, Gem Draw or other such packages, or even text files from a word processing package. This makes it possible to use Superbase to index and organise a collection of pictures or text files without actually knowing anything about the contents of those files.

For example, a Superbase data file could be set up where each record contained an 'external' field pointing towards a single letter to a particular client. Then the rest of the information about the client could be entered in the remaining fields in each record, and searched and sorted in the normal way.

The difference would be that the latest letter to that client would be instantly available through the 'external' link, and the text of the letter could be displayed alongside the Superbase record.

There is no other database around that can do this with graphics at the moment, or as elegantly as Superbase, although Ashton-Tate's dBase III and RapidFile have similar techniques to link text with records in their data files and display a record and its linked text side by side.

Superbase also includes facilities to link data files into a full relational structure, so that data can be retrieved from several separate files and combined into a single report complete with summaries and totals of the numerical fields if required.

This is done by entering query commands in a dialogue box, although the query language provided is limited. The language is both strict enough for the user to make honest syntax mistakes and flexible enough to give the user a chance of getting things wrong.

Multiple-file retrieval queries can be written and used in Superbase, but trial and error is normally needed to get things right.

For single files though, things are easier. Here the video-style control buttons at the bottom of the screen come into play, with functions that closely match their consumer durable equivalents.

For example, 'play' displays the next file record in sequence. This is determined by the current sorted order, while 'fast forward' and 'rewind' display all the records rapidly one after another until the 'pause' or 'stop' buttons are selected.

Two new buttons, 'first' and 'last', jump to the top or bottom of the file respectively, and there are three non-video buttons called 'key lookup', 'filter' and 'external file'.

Key lookup helps the computer find records more easily when they are sorted. If the records are sorted in last-name order, then typing in Smith as a lookup criteria lets the computer jump straight to the right record.

On the other hand, 'filter' allows the entry of complex criteria governing the selection of records from the file. By selecting field names and arithmetic and logical operators from a dialogue box, the user can extract all those records where LastName > Smith AND FirstName < John AND Salary >10,000.

Such filters play an important part in Superbase, appearing in all sorts of guises in queries, reports and formatting. They are in fact one of its more confusing aspects. It is hard to remember at times just what is being filtered, which file or which set of records indexed in which way. Once again, mistakes are easy.

Fortunately, so are many normally-difficult database functions. Screen format design, for example, is simple or unnecessary. Superbase provides three views on a data file; one is the record view, where a single record is displayed on the screen in a crude dBase-style format.

The second is the form view, where a more attractive display – built into Superbase – lays the fields and contents nicely around the screen. The third is the table view where a spreadsheet-like display shows the file records as the rows and the fields from each record as the columns.

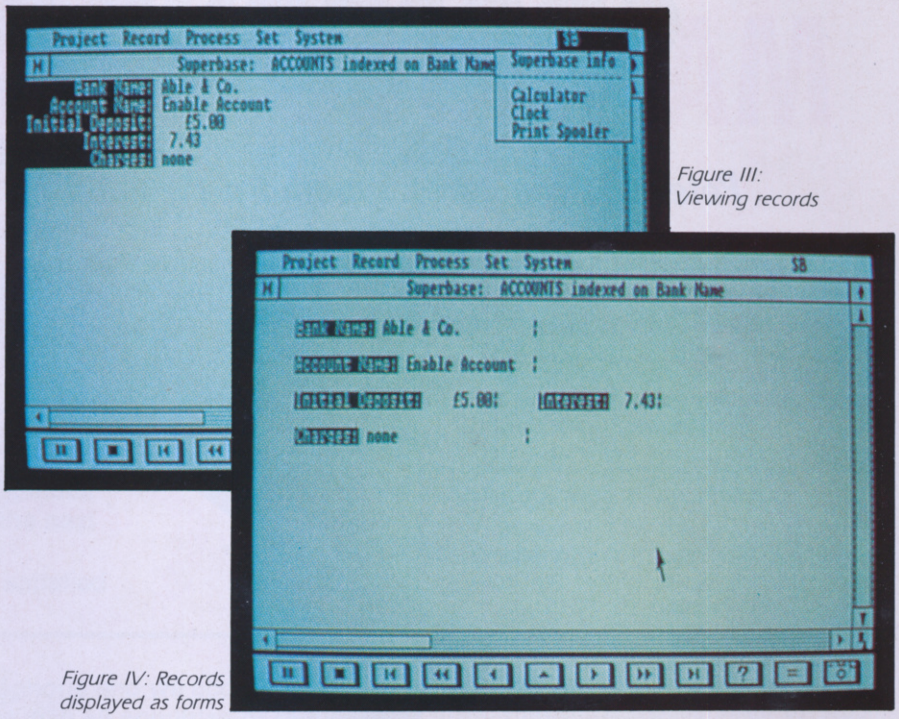
The design of the screen forms can be changed at will by dragging the fields around the screen to different positions, and they can even be dragged off the screen altogether although they cannot be overlapped.

Data can be entered either in record or form view, whichever is more comfortable for the user, and standard Gem text-editing techniques, like cut-and-paste and double-clicking on a word or field to select it, apply.

In general, Superbase scores pretty well in its use of the Gem interface. There are problems that should have been ironed out by user-testing. One is the clumsy method of defining fields and their sizes, involving multiple mouse-clicks, use of the keyboard, and unnecessary dialogue boxes. Another is multiple and nearly-identical filters. But overall the program is easier to use than its non-Gem equivalent.

In power too, Superbase scores. The facilities offered, particularly the external graphics file feature, are either exciting and new or so standard that they are expected. That comes at the expense, sometimes, of clarity and speed. There are occasions when the sensitive Amstrad mouse and the time taken to redraw the screen ready for the next command conspire to make the user fail to enter the right command. But the performance can be rated mostly satisfactory, and better than that for some standard functions.

For those who need a Gem database, Superbase and SPI's GBase are the only choices. For those who need a way of organising and cataloguing a graphics or text file library, Superbase could well be the preferred choice. ■


Project Record Process Set System
SB
Superbase: ACCOUNTS indexed on Bank Name
Superbase info
Calculator
Clock
Print Spooler

Bank Name: Able & Co.
Account Name: Enable Account
Initial Deposit: £5.00
Interest: 7.43
Charges: none

Figure III: Viewing records

Bank Name: Able & Co.
Account Name: Enable Account
Initial Deposit: £5.00
Interest: 7.43
Charges: none

Figure IV: Records displayed as forms

▶ *Product: Superbase Personal*
▶ *Price: £99.95*
▶ *Supplier: Precision Software, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ*
▶ *Tel: 01-330 7166*

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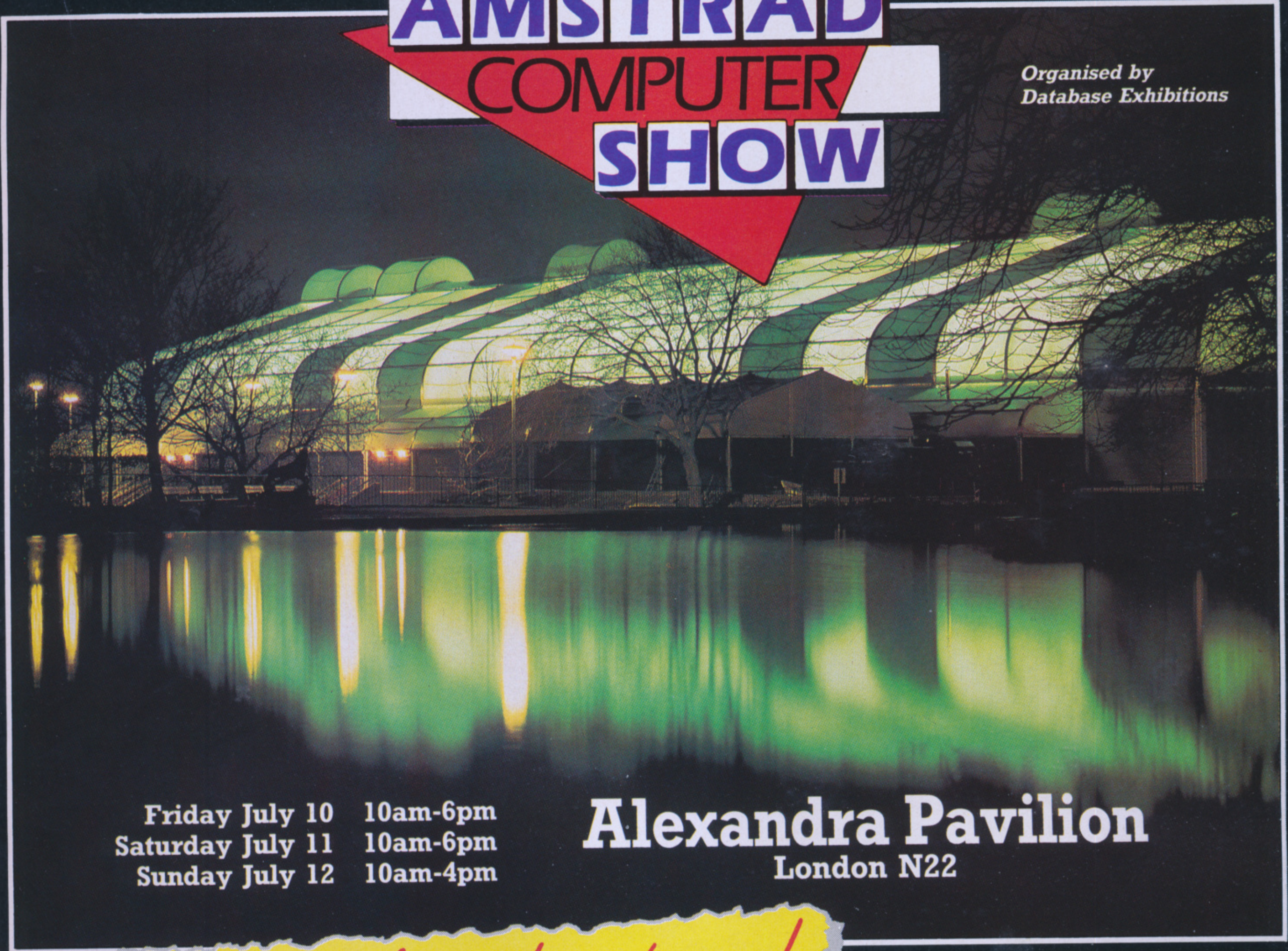

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Load Plan
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Micro Anvika
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Minerva Systems
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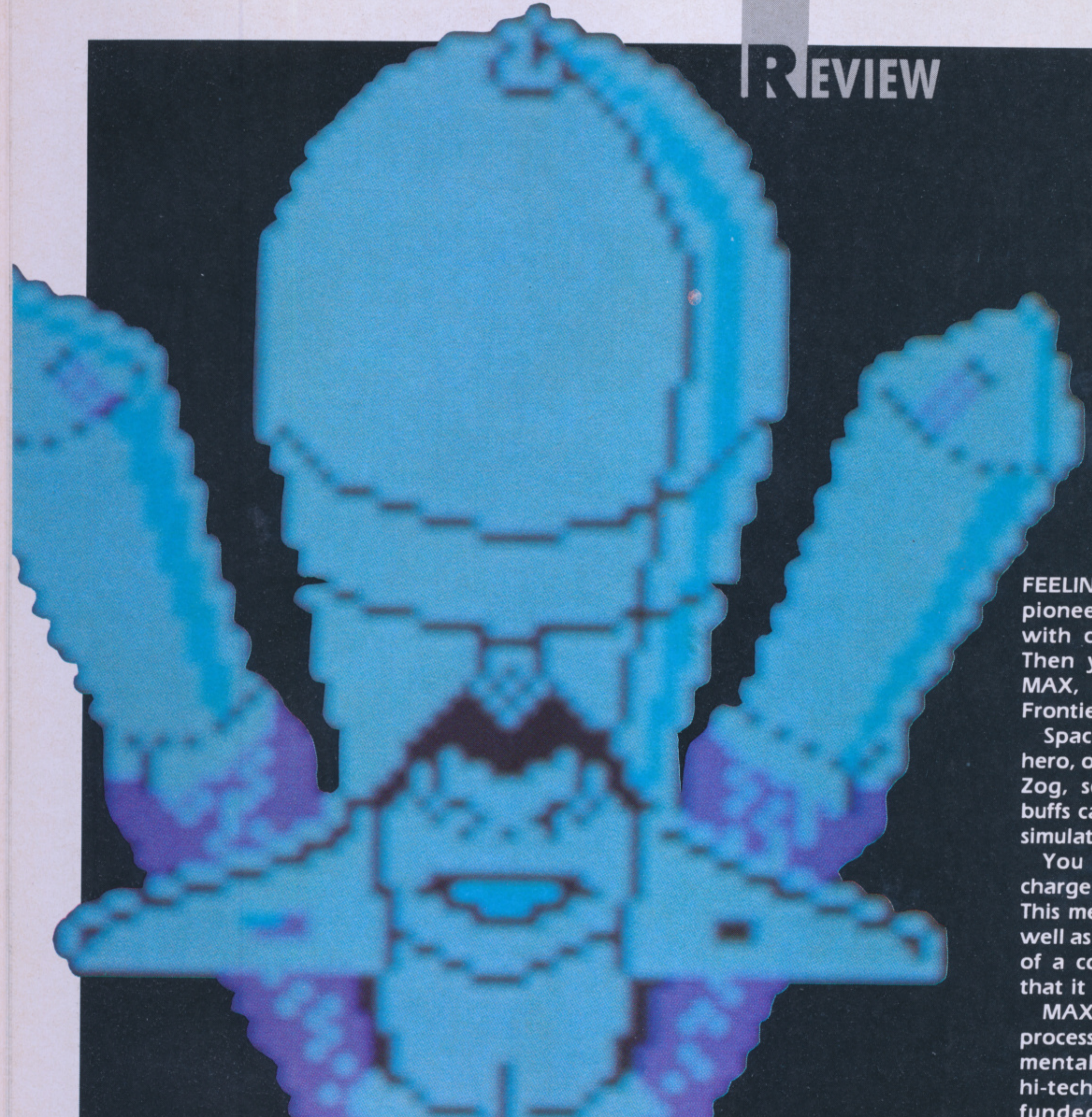

Taken for a ride: Can you launch the shuttle successfully?

TO

FEELING sharp, confident and full of pioneer spirit? Are you stocked up with coffee and convenience food? Then you're ready to tackle Space MAX, the latest offering from Final Frontier Software.

Space MAX is not a heavy metal hero, or a cute fuzzball from the planet Zog, so arcade freaks and roleplay buffs can sneak away. This is a serious simulation.

You are the project manager in charge of constructing a space station. This means assembling the modules as well as keeping an eye on every aspect of a complex project – and ensuring that it makes money.

MAX is an acronym for Materials processing, Astrophysics, and eXperimental, and modules are leased to hi-tech companies and government-funded agencies for purposes of research and extra-terrestrial widget manufacture.

The movers and shakers at Grummans, McDonnell Douglas and 3M have invested heavily in the project, and it's your job to keep it running profitably, and seeing that it is supplied by relays of space shuttles and unmanned freight vehicles.

Before booting up Space MAX, you need to do some homework. The package comes with a 100-page manual, that is an enjoyable and informative read. After completing it I had a much clearer understanding of the space shuttle programme.

Apart from setting out the parameters of the simulation and the major constraints of time and funding, there are briefings on such arcane matters as latex bead production, electrophoresis, and the role of Gallium Arsenide in microchip production. You technophiles out there may know about all these things, but they were news to me.

The manual is nicely presented and written. It contains good, clear graphics and photos of the NASA hardware you'll be blasting into orbit. This simulation is firmly based in reality.

Having read the manual, and fired up your PC you'll see some well-

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Tony Macnabb takes up the challenge of serious space flight management

SPACE
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Copyright © 1986 T.L. Keller. IBM ® is a registered trademark of International Business Machines Corporation. Includes graphics routines from Penguin Software's ™ Graphics Magician ®.

Space Max from Final Frontier Software

executed screen graphics – a taste of things to come. You're then asked, among other things, to select your skill level on a scale of 1- 5. In the manual the flight surgeon warns: "Used at the highest level of difficulty this software may be too intense, and could damage your mental health."

I thought at first that this was a wry joke, but he's not kidding. At advanced levels there are a lot of emergencies to contend with, and the orbital decay factor is increased. This means you have to keep boosting the station to the right altitude and adjusting its inclination.

Next take a look at the budget, and view the Mission Control Menu, which lists major activities and areas of operation. Then you load and you're off and running.

Once in orbit, you can assemble the space station modules in any order, though it's unwise to depart too far from the suggested configuration. If you put the labs next door to the crew's r & r facility, for example, you could end up with a costly strike on your hands.

Traffic – ease of internal communication – and "habitability" are important factors to the success of your mission. You must also work out how to rotate your crews and see that there are enough suitably qualified personnel to carry out different tasks.

As you assemble the station, your performance is monitored on a bar chart in the Quality and Damage Control Display, providing a jiffy indicator of how the project is progressing. But watch out. The movers and shakers want a prompt return on their investment.

You are committed to achieving "minimum configuration" within a given number of days. If you perform well, and don't kill too many crew members, you'll get rich. The amount you make personally from the project is the final indication of how well you did.

Space MAX isn't cheap. But if you like a serious challenge, and are prepared to invest the cash and a fair amount of time, it's definitely for you.

If you're a space buff, or have ever wondered what those shirt-sleeved characters hunched over their VDUs at Mission Control get up to, Space MAX gives a vivid, hands-on educational experience.

TL Keller, who devised and wrote Space MAX, was a systems analyst for the Jet Propulsion Laboratory, and it's based on real resource management programmes developed by him for their exploration projects.

I had a nasty feeling at first that Space MAX was going to be all spreadsheets and statistics, but great interactive graphics from Penguin Software help bring it to life, down to the fine manoeuvering necessary for docking the modules together.

There are a couple of interesting quotes in the manual. The first is from Alfred, Lord Tennyson, who ...

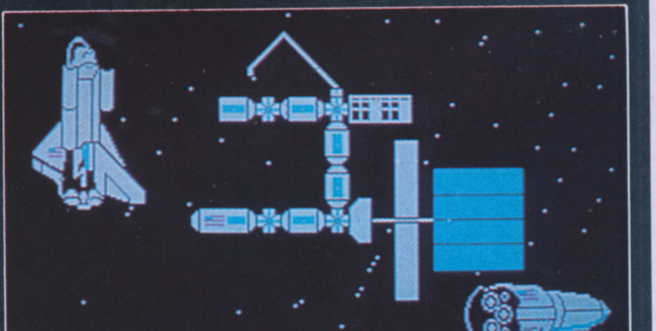
"saw the heavens filled with commerce
argosies of magic sails,
Pilots of the purple twilight,
dropping down with costly bales."

The second is from Rear Admiral Richard H. Truly, Director of the Shuttle programme, who died in the Challenger disaster:

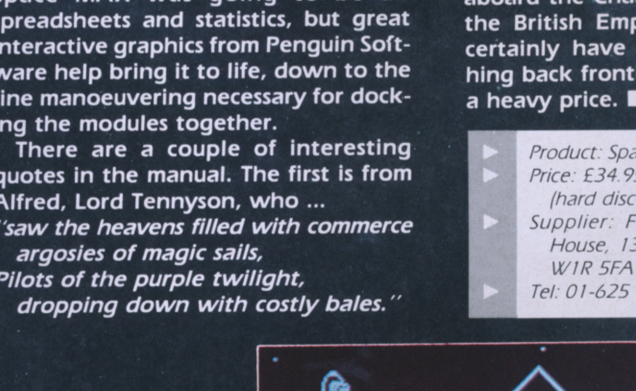
"The business of flying in space is bold business. We cannot print enough money to make it totally risk free."

The package is dedicated to Sharon McAuliffe, the schoolteacher who died with Richard H. Truly and five others aboard the Challenger. As laureate of the British Empire, Tennyson would certainly have understood that pushing back frontiers of any kind exacts a heavy price. ■

- ► *Product: Space Max*
- ► *Price: £34.95 (copy protected) £39.95 (hard disc version)*
- ► *Supplier: Final Frontier, Chesham House, 136 Regents Street, London W1R 5FA*
- ► *Tel: 01-625 9756*



Your goal: To construct a space station ...


ADAPTER [4]
HEAT [15]
SOLAR [17]
COMMAND [12]
RMA [8]
HAB [4]
LOG [4]
REC [3]
THRUST [7]
PALLET [3]
EXPERL [9]
ASTRO [9]
MP-BIO [15]
MP-ELC [10]
MP-MGP [16]
MEDIC [3]

```
SUGGESTED MODULE
ASSEMBLY SEQUENCE
[MAN-DAYS TO ASSEMBLE]

CREW STATUS
WORKING CREW ON-ORBIT
                      QTY
COMMANDER/PILOT         2
MISSION SPECIALIST      1
FLIGHT SURGEON          0
OPERATING CREW          0
ASSEMBLERS              4

ASSEMBLY INSTRUCTIONS
MODULE SELECTION CORRECT?

ORBITERS & MODULES ON-ORBIT
                  ↓+
MODULES:          ←↑ ORB ASM ACT
ASTROPHYSICS          0   0   0
COMMAND               0   0   0
EXPERIMENTAL          0   0   0
HABITATION        ▶[] 1   0   0
HEAT RADIATOR         0   0   0
ADAPTER               1   0   0
MATL PRO-BIO          0   0   0
MATL PRO-ELC          0   0   0
MATL PRO-MGP          0   0   0
MEDICAL               0   0   0
PALLET RACK           0   0   0
THRUSTER              0   0   0
RECREATION            0   0   0
REM MANIP ARM         1   0   0
SOLAR ARRAY           0   0   0
LOGISTICS             0   0   0
ORBITERS:
ENDEAVOUR
              SCHEDULE DAYS
              TOT PROJECT 73
              TO DATE      2
              REMAINING   71
```

... keeping an eye on the huge amount of data

THREE STEPS TO BASIC

Pete Bibby continues his gentle introduction to the joys of programming

Right, lots of practical work this month so let's get started by going into Basic2. To do this reboot by pressing Shift, Alt and the Del on the keypad at the same time. (Alternatively, you could switch off and on again – but don't leave any discs in the drive while you do so.)

If you're on hard disc, pressing F1 will take you straight to the Gem Desktop. Floppy owners will have to insert their copy of the Gem Startup disc at reboot and proceed from there to the Gem desktop disc when prompted.

Either way, when you're at the Desktop, double click on the Basic2 icon and you're away. In a later issue of *PCA* we'll be showing you how to get into Basic2 using only one disc, but as it's at the cost of some of the features we want to look at this month, I suggest you follow the scenic route through Desktop.

You'll see the default screen consisting of three windows:

- Dialogue: Immediate commands and messages appear here.
- Edit: Programs are created and edited here.
- Results-1: Where the output from commands and programs appear.

Actually, most of this can be varied – Basic2 is extremely adaptable. Window size can alter, output can be sent to different windows and so on. For this month we'll be sticking to our default screen, though you'll probably want to play with the windows yourself. If so, remember that the easy way back to square one is to enter:

```
clear reset
```

I guarantee you'll find this an extremely useful command.

Last month I told you to enter:

```
PRINT "Hello"
```

Try entering this now. Your typing will appear in the Dialogue screen. Once you have finished your command send it to the computer for ''processing'' by pressing the Return or Enter key – the one with the bent arrow on it. From now on, I'm going to assume that you will do this automatically at the end of each command or line of a Basic program.

If all goes well you'll see the greeting **Hello** appear in the Results screen. If not, the following points might show where you've gone wrong.

The command you gave to the computer was **PRINT**, the meaning of which should be obvious. You could have entered it in lower case as **print** and the micro would still have recognised it. PRINT is a Basic keyword – specially reserved as a Basic command word. We'll be meeting others.

The second part of the command is the message we want printing, in this case **Hello**. This is our first string. All a string is is a collection of letters ''all strung together'': A dictionary contains thousands of strings, and this article has quite a few.

An important point to note is that the characters (letters and numbers) making up our string are surrounded with double quotes. These are *very* important. When the micro encounters a string after PRINT it prints out the letters between quotes *exactly* – if you like it *quotes* or *prints* them literally. Try entering the following:

```
PRINT "HELLO"
print "hello"
PRINT " Hello"
```

Notice that as far as your keyword is concerned, case doesn't matter, whereas for strings big and little letters – and spaces – count.

In honesty I ought to tell you that there doesn't have to be a space after PRINT – the first '' takes care of that – but there are all sorts of problems in the future if you adopt that approach, so get into the habit of leaving spaces after your keywords.

And you don't even need that final '' in this instance, but getting into the habit of closing your quotes this way can also save future hassles.

PRINT is a fairly straightforward command, but it's vital nevertheless. And Locomotive has given Basic2 one of the most powerful PRINT statements available. For a start there are several different fonts and point sizes available. To see this, move your pointer to **Fonts** on the top line of the screen and the Fonts menu will drop down.

As you can see there are many different ways we can print things out. There are at least three typestyles or fonts: System, Swiss and Dutch. There is also a fourth, loadable, for custom-made typestyles, but as you can tell from its being in a lighter shade than the others, this isn't available at the moment.

The font in use is marked by a filled-in triangle at its side. Initially this is System style. If, however, you use your mouse to

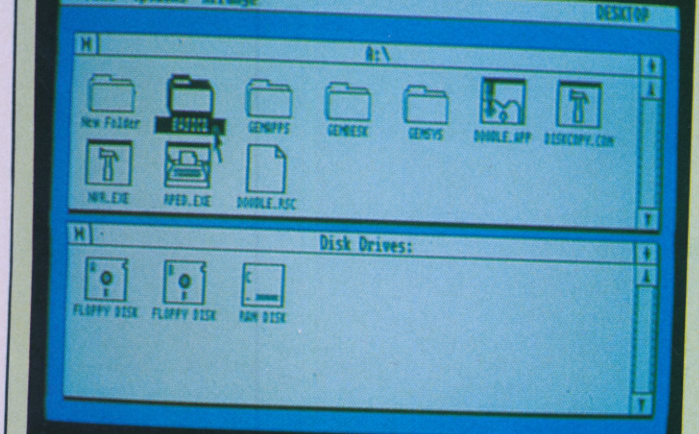
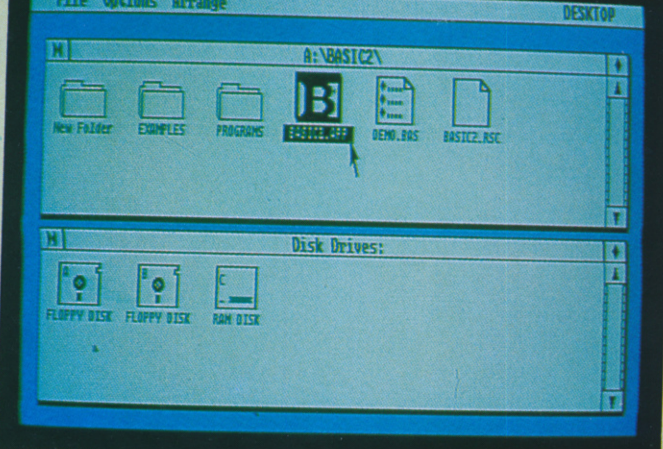


Figure 1: Three steps to Basic: Click on BASIC2 in Desktop



...then click on BASIC2.APP

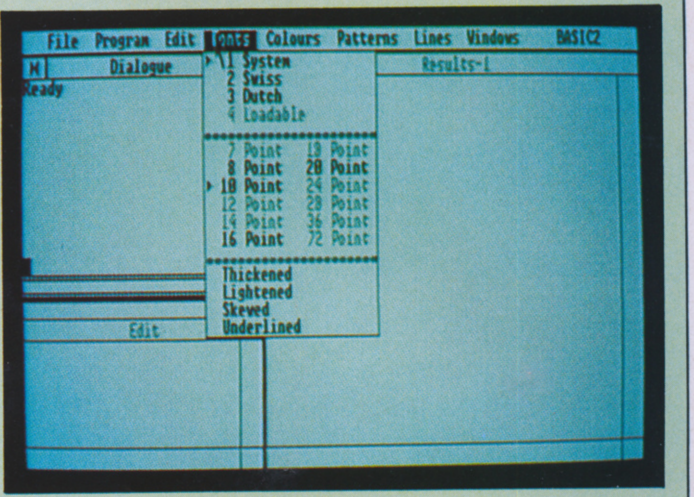


Figure II: Fonts menu

move the on-screen pointer down the fonts menu a dark "selection" bar will appear, "highlighting" the particular style the pointer's on. Click on the left hand mouse button and the style under the highlight bar will be chosen for the next PRINT.

Try it: Drop the Fonts menu, move the pointer down it to:

```
2 Swiss
```

and click on the left button. Exit the menu by moving your pointer completely off it and clicking on the left hand button. Now try:

```
PRINT "Hello"
```

and see what you get.

And there are different point sizes available, too. These control the size of the typeface. As you'll see from the triangle, 10 point is normally selected, though 8,16 and 20 point are available as standard (the higher the point number, the greater the size) while the other point sizes shown in a lighter shade are possibilities.

Use your mouse to select these and try them out with your PRINT statement. And you don't have to stick to Hello – you can put any message you want between those quotes.

While you're at it, try the Thickened, Lightened, Skewed and Underlined effects that are also available from the fonts menu.

You can also click on to colours, as you'll see by moving your pointer over to **Colours** and dropping the menu which makes a distinction between text and graphics colours. It's the former we're interested in now. Experiment with them: The colour your text will appear in – the *current foreground colour* – is shown by the triangle next to it, as on the Fonts menu.

Since we're looking at the various menus already, drop the BASIC2 menu and click on to **About BASIC 2 ...** You'll see the version number displayed. If it's version 1.12 you'll want to change it to 1.12B with the two PATCH programs on this month's *PCA* disc.

Exit the menu by clicking on OK.

So far we've managed to print simple messages to the screen. However, it's been fairly restricted. As it is the computer is slavishly following our commands as soon as we press Enter. So we've been asking it to do something, pressing Enter to send the command to the computer which then does it, then typing the next task, pressing Enter and so on.

It's a bit longwinded – rather like going out to the shops and buying the potatoes, going home then going back to buy the meat, then home and back to buy the toothpaste – It's a lot easier if we make a list of what we want first, then make our journey.

Similarly, a computer program is just a list of tasks we compose before we actually do them. Once we've finished our list we ask the micro to do the program of tasks we've devised for it – in computerese, we say we **run** the program.

As we've seen, when we give the micro a task in the dialogue screen – by typing a command and pressing Enter – it's done immediately. We say that Basic is in *Direct Mode*, when it does its commands directly you give it them. This is fine for experimenting, but not too good for giving lists of commands to be done in sequence.

To give the micro such a list or program, we use the Editing window. We met this last month. You can move to the editing window in at least four ways (though knowing Locomotive, there are bound to be more):

- Move your pointer on to the Edit window and click the left hand button.
- Drop down the Edit menu from the top line, highlight the Edit selection and click on it.
- Press F10 (for those with a phobia about mice).
- Enter EDIT from the dialogue screen.

Whichever you choose you'll see the window title darken to show that it's now the active screen and the cursor – the dark rectangle that marks where the characters we type appear – also moves to the Edit screen.

Now enter the following:

```
PRINT "This"
PRINT "is a"
PRINT "simple"
PRINT "program."
```

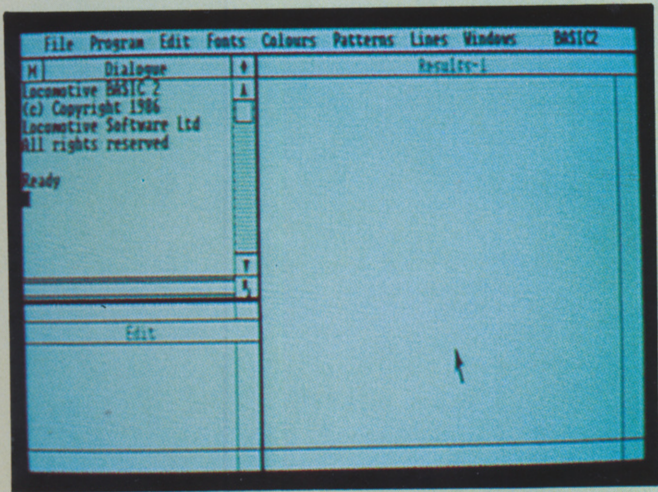
The first thing you'll notice is that the command isn't done as soon as you press Enter. It's simply stored in the memory of the micro as part of the list of tasks – or program – to be done at a later date. (I think Edit Mode should be retitled Procrastination Mode.) You'll see that each line is automatically preceded by a diamond to signify this.

Once you've got the program entered it's time to run it. There are at least three ways to do this:

- Drop down the Program menu from the top line, highlight the Run selection and click on it.
- Press F9.
- Click on the Dialogue screen and enter RUN.

Whichever way you do it, the micro will then proceed to execute the commands – or statements – in sequence from the

Turn to Page 22 ▶


File Program Edit Fonts Colours Patterns Lines Windows BASIC2
M Dialogue
Results-1
Edit

```
Locomotive BASIC 2
(c) Copyright 1986
Locomotive Software Ltd
All rights reserved

Ready
```

...ready for action: Basic2!

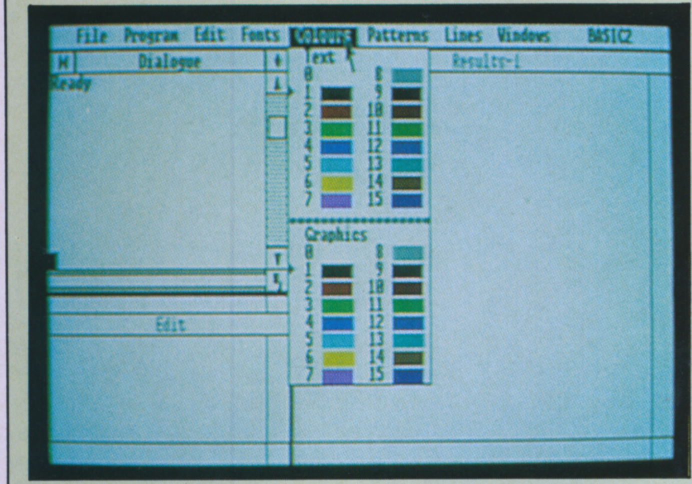

File Program Edit Fonts Colours Patterns Lines Windows BASIC2
Dialogue
Ready
Text
Graphics
Results-1
Edit

Figure III: Colours menu

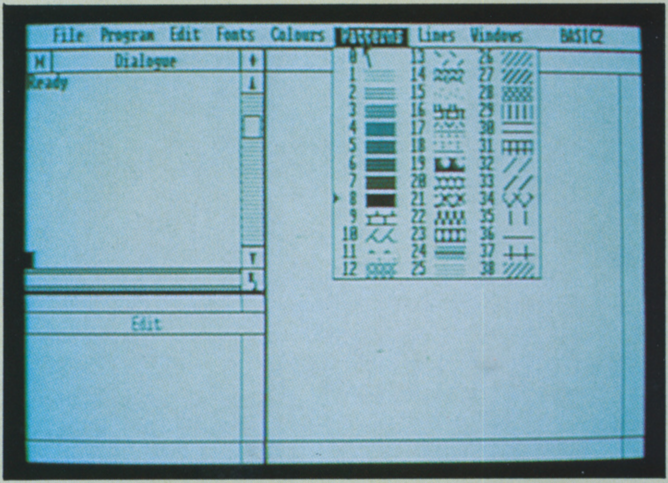

File Program Edit Fonts Colours Patterns Lines Windows BASIC2
Dialogue
Ready
Edit

Figure IV: Patterns menu

◀ **From Page 21**

beginning, so you'll see the message:

```
This
is a
simple
program.
```

Notice that when you've run the program, if all goes well you end up in the Dialogue Screen again.

However, if you've given the micro something it doesn't understand it will signal a "Syntax error" in the Dialogue screen and deposit you in the Edit screen.

Syntax errors occur, for example, when you mispell a keyword such as PRINT. Basic expects each line to start with a keyword and if you don't supply one you're in trouble. You may, instance, have entered PINT for PRINT, in which case the program will grind to a halt in Edit with the cursor at the beginning of the line where there's a problem.

Of course the micro can't speculate on the correctness of what you want to print: What you've put inside those quotes is your business. So:

```
PRINT "Thhis"
```

may well give the wrong results but it's not a syntax error. It's just carelessness, and you end up in the dialogue screen with the computer perfectly happy that it's carried out its side of things properly. At least you're only F10 away from Edit.

At this stage most of your errors will be simple typing mistakes so let's see how to alter things in a program, and so illustrate how we'd correct errors.

What we're going to do is to change the second line so it reads:

```
PRINT "is not a"
```

That is, we're adding "not" to the line. To do this we need to move the cursor until it's over the "a" of the second line. There are two ways to do this:

- use the arrow keys on the numeric pad to get it into place
- move the pointer to that position and click on the left hand mouse button. Now type in:

```
not
```

followed by a space and you'll see that the rest moves over to accommodate it, the cursor still staying over the "a". This is similar to the Insert or Push mode of most word processors.

While it's there let's find out how to get rid of text you don't want. If you press the ←Del key at the top right of the main keyboard you'll see the "not" gobbled up letter by letter. Again the text shuffles along, this time to close up the gap left by the deleted missing letters.

The Del→ key doesn't function at all, while the Del at the bottom right of the numeric keypad deletes the character under the cursor, again moving the text to close up the gap. Try it, it's simple once you see it in practice.

For the time being, though, just re-insert your "not" and run the program with an F9. All should be well – if not, correct your error.

We can also insert lines. Let's put "demo" on the line above "program". Just move the cursor on to the diamond at the beginning of the line with "program" in and press Enter. There you go, a new line, ready for you to type text on to. Add:

```
print "demo"
```

Notice that the keyword is in lower case. Don't worry, at the next chance it gets – in this case when you press Enter – Basic converts it to PRINT. When you run your new version you should see the output:

```
This
is a
simple
demo
program.
```

What? You've left the "not" in? Better get rid of it then – you know how. There's a lot more to editing programs than this but these techniques will see you through.

If you want to get rid of a whole line move the cursor to its initial diamond then use the Del on the numeric pad to consume the rest of the line until you finally meet the diamond at the head of the next line.

The commonest mistake is to think that the text is going to appear at the pointer and not the rectangular cursor. Remember, if you want what you type to appear at the pointer, move the cursor to the pointer with a click on the left hand mouse button beforehand.

Assuming that you've followed me step by step, you should have a five line program. What I want you to do now is to put a semicolon at the end of each line bar the last – *after* the quotes. I suggest you move to the end of each line with the mouse, click and type a semicolon. Your program should now read:

```
PRINT "This";
PRINT "is a";
PRINT "simple";
PRINT "demo";
PRINT "program."
```

Not too legible a result is it? You see, the semicolon has the effect of "glueing" the output of one PRINT statement to that of the one before it. Without the semicolon the micro gave the output from each PRINT statement a new line.

Can you tidy up the output a bit by inserting some spaces? I know the lateral thinkers among you can get the output all on one line with:

```
PRINT "This is a simple demo program."
```

but I want you to keep the routine in five lines.

And that's it for this month. You now know how to write programs to print messages to the screen – and by using the Fonts and Colours menu you'll be able to run each program with a variety of effects. See what you can achieve.

If you really want something to think about, have a go at this: I bet that you've already forgotten to enclose your string in quotes. If not try:

```
PRINT Hello
```

from the Dialogue screen. You'll get a 0 appearing in Results-1. Exactly why we'll start to look at next month.■

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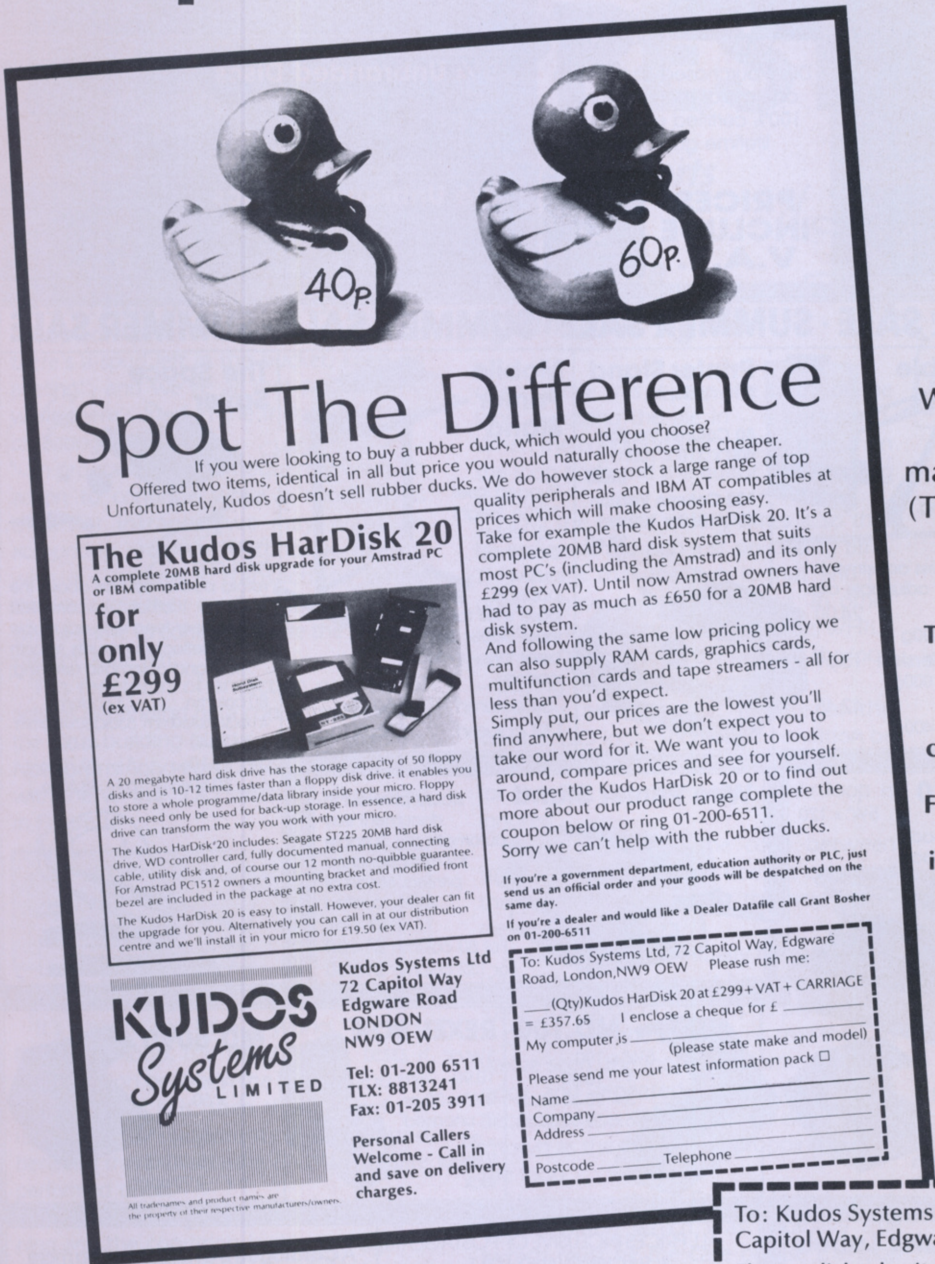

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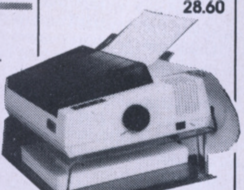

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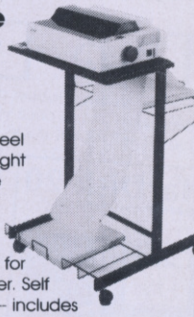

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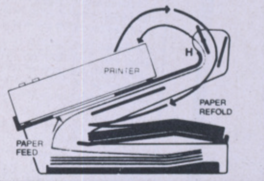

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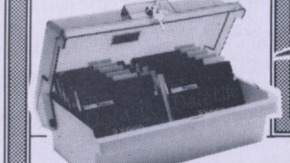

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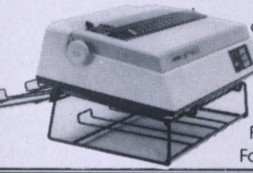

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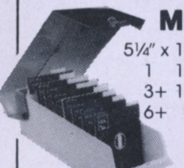

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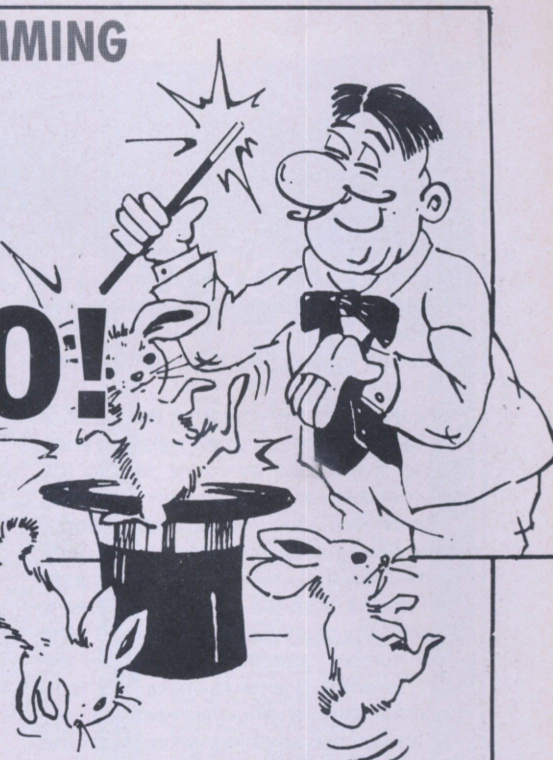
HEY PRESTO!

Trevor Roberts goes over pseudocode again and again



LAST month we explored pseudocode's FOR...DO, the structure shown in Figure I. This allowed us to repeat whatever came between the FOR and the ENDFOR, the body of the loop, a fixed number of times.

```
FOR a number of times DO
   something
   something else
ENDFOR
```

Figure I: A fixed number of repetitions

Useful as this is it's often the case that we don't know how many times we want a loop to repeat. We tell people "While there's a spud left in the bucket, keep on peeling", and we've all met people who while there's food in the fridge, will keep on eating.

In programming we frequently want an action to continue while a condition is true. For instance, we may want an accounting program to continue dealing with a customer's transactions while they're inside their credit limit. Or we may wish a game to continue while the player's still got a life left.

This repetition of an action or a set of actions depending on a condition is one of the basic building blocks of programming. Not surprisingly, pseudocode reflects this with the WHILE...DO structure, illustrated in Figure II:

```
WHILE condition is true DO
   action
   action
ENDWHILE
```

Figure II: The WHILE...DO structure

It's easy to see how it works. The first line of the loop, the WHILE...DO, tests if the condition between the WHILE and the DO is true. If it is, then the body of the loop – the statements sandwiched between the DO and the ENDWHILE are performed once.

Then the loop goes back to the beginning and the condition is checked again.

If it's true then the body of the loop is performed once more. This cycle of checking the condition and then repeating the body of the loop carries on until the condition is found to be false. Then the loop stops.

Figure III shows the WHILE...DO loop as applied to getting our editor to buy the drinks. The condition is that the pub is open. While this is true the body of the loop – getting the ale in – is performed. When the condition stops being true, then the loop ends and the editor stops buying rounds.

```
while the pub is open do
   go to bar
   buy drink
   consume drink
endwhile
```

Figure III: While the editor's in the pub....

Now the editor usually times it so that he arrives at the pub just on closing time. This means that the pub is shut and he doesn't have to buy the drinks. In other words, the condition between the WHILE and the DO is false so the body of the loop – buying his round – is ignored.

This is an important feature of the WHILE...DO loop. Should the condition be false when the program comes to the loop for the first time then the whole loop is ignored.

It's as though all the code between WHILE and ENDWHILE doesn't exist and the program goes on to the next statement, if any.

If the condition is initially false, then the WHILE loop just doesn't happen. Nothing inside the body of the loop is performed.

Of course if the condition is true then, as we've seen, the loop is performed at least once and repeated until the condition becomes false. Then the loop ends. This is known as the algorithm "dropping out of" the loop.

Notice one thing: For the loop to stop, the condition which was originally true (which must be the case or else the loop would have been ignored) must have become false. The only way for this to happen is for the body of the loop to cause some change in that condition.

If this didn't happen, the condition would always be true and the loop would cycle endlessly. The moral is to always make sure that something inside the body of the loop changes the condition that decides whether the loop repeats. You'll see this in the pseudocode fragment of Figure IV.

This is a fairly straightforward piece of code that takes a series of numbers, keeps a running total and then works out the average.

```
set total to zero
set count to zero
get number

while number is not zero do
   add number to total
   add 1 to count
   get number
endwhile

set average to total divided by count
display average
```

Figure IV: An average piece of pseudocode

Rather than a FOR...DO loop which assumes that we know the number of numbers we're going to enter, the more flexible WHILE..DO is used. This keeps on repeating until the number given to the program is zero.

Looking at Figure IV's code in detail, the first two lines tell us that two variables are to be used, *total* and *count* and these are both to be set to zero at the start.

You can look on these variables rather like the *x* and *y* which "stand for" numbers in algebra problems. The third line looks to the keyboard for a value and puts this into *number*.

The next lines form the WHILE...DO loop. First of all the value of *number* is checked. If this is 0, then the initial condition is false and the loop is ignored. Leaving that possibility for the moment, suppose that *number* is anything but 0. Then the loop condition is true and the code between the DO and ENDWHILE is performed.

This adds *number* to *total* and increments *count* to keep track of the number of numbers accepted by the loop. Another value of *number* is then requested from the keyboard.

Once this has happened, the

Turn to Page 26 ▶

◀ **From Page 25**

ENDWHILE sends the algorithm back to test the loop condition. If the value of *number* is 0 then the loop ends or else it continues, cycling until eventually *number* is 0.

At this point the algorithm drops out of the loop and goes on to the next two lines. These divide *total* by *count*, storing the result in *average* which is then displayed.

Remember what was said earlier about there having to be something in the body of the loop that changed the loop condition or else once the loop was entered it would carry on forever? In this case it's the "get number" statement. This allows the user to enter 0 and so make the loop condition false, ending the repetition.

Can you see anything wrong with the code in Figure IV? What if an evil-minded user gives *number* an initial value of 0? As we've seen, this means that the loop is ignored and the algorithm goes on to the following two lines. But in this case *count* still holds the value 0 and the algorithm tries to divide *total* by this. You can't divide by zero, so Figure IV's algorithm has a potential flaw in it. We'll see how to remedy this next month.

```
    total=0
    count=0
    get number
while number <> 0 do
    total=total+number
    count=count+1
    get number
endwhile

average=total/count
display average
```

Figure V: Rather more symbolic pseudocode

For the moment look at Figure V. This is exactly the same algorithm as the one in Figure IV, the only difference being the way it is expressed. In Figure IV, the statements are close to English and relatively informal. In Figure V the pseudocode is very formal and precise, nearly mathematical. It almost reads like Basic.

That's why I prefer Figure IV's method of expression to Figure V. The more symbolic, precise code makes me think automatically in terms of Basic while the Figure IV could be translated into Pascal or assembler or whatever. It's more fluid and, for me at any rate, preferable.

The method you choose is up to you. I like to put off making decisions as long as possible, using mini-algorithms to take care of details. I must admit that, getting further into these, the pseudocode starts to look like Figure V's code as I get down to fairly basic, nitty-gritty operations. At the higher levels of the algorithm I tend to use the rather freer mode of expression shown in Figure IV.

It allows me to think of the main features of the algorithm without being bogged down with details. They can come later as I get into the mini-algorithms.

While we're on the subject of repetitions, there is another pseudocode structure which allows us to repeat sections of code. This is the REPEAT...UNTIL loop. Corresponding to a real-life instruction such as "Keep on doing it until you get it right", it takes the form shown in Figure VI.

```
REPEAT
    action
    action
    action
UNTIL condition is true
```

Figure VI: The REPEAT...UNTIL structure

Here the body of the loop, the statements that are to be repeated, are sandwiched between the REPEAT and the UNTIL. The condition that is tested comes after the UNTIL. And that's an important point. With a REPEAT...UNTIL loop, the body of the loop is performed and *then* the condition is tested.

If the condition is true then the loop stops otherwise the body of the loop is repeated, followed by the condition being tested again and so on. Figure VII shows how this applies to our editor while Figure VIII shows it in use in a very simple algorithm.

```
repeat
    go to bar
    buy drink
    consume drink
until closing time
```

Figure VII: The editor's round – again

```
repeat
    get a number
    double number
    display result
until number is zero
```

Figure VIII: REPEAT...UNTIL in action

Here the body of the loop consists of a request for a number which is then doubled and displayed. Once this is done the code tests to see if the number is 0. If it is then the loop stops. If it isn't, the loop repeats with another request for a value.

One thing to notice is that the body of the loop must be performed at least once. This is because the loop condition isn't tested until after the body of the loop.

Suppose that the user replies 0 to the first request. The algorithm will take this value, storing it in *number*. The next line doubles this, again storing it in *number*.

The fact that twice 0 is 0 is neither here nor there to the algorithm – it carries on regardless.

The third statement displays the value in *number* and then and only then is the loop condition met. Now, since it's true that *number* is 0, the loop terminating condition is met and the loop ends. So the loop must be performed at least once (when *number* is 0) and possibly many times.

To sum up, the REPEAT...UNTIL loop is always performed at least once. The loop condition is tested at the end of the body of the loop and the loop stops when this condition is true. This is in marked contrast to the WHILE...DO loop which may not be performed at all. This tests the loop condition *before* entering the body of the loop, the loop keeping on repeating while this condition is true.

Having talked about how to use REPEAT...UNTIL loops I'll now tell you that they're not really necessary. Anything that you can do with a REPEAT...UNTIL loop, can be expressed as a WHILE...DO loop. Because of this, some people just stick to WHILE...DO loops, looking down on the use of REPEAT...UNTIL in pseudocode.

I prefer the flexibility of having both structures. Sometimes I think in WHILEs – "While the debts are less than £100 I won't worry" – sometimes in UNTILs – "I won't worry until the debt is 100 quid or more". I find it easier to use structures that mimic the way I think about problems rather than twist my thoughts to fit someone's rules for pseudocode.

Even if you do replace REPEAT...UNTILs with WHILE...DOs, it can be a bit messy. Figure IX shows a translation of Figure VIII into a WHILE...DO loop. Nasty, isn't it?

```
get number
while number not equal to zero do
    double number
    display number
    get number
endwhile
display number
```

Figure IX: The WHILE...DO alternative

That's where we leave our exploration of pseudcode for this month. So far we've covered breaking down problems into smaller and smaller units, using mini-algorithms as necessary. We've followed the principle of "never do in one bit of code what can be put off until another", dividing the problem into ever simpler tasks. Not content with just having a sequence of commands, one statement following another, we've also learnt about repetition.

So now we have three ways of performing a section of code over and over a required number of times. Next month we'll look at how we can take decisions in pseudocode. ■

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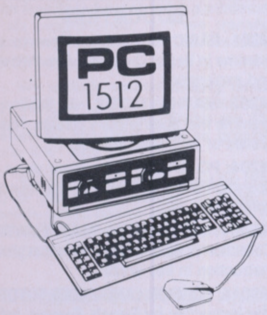

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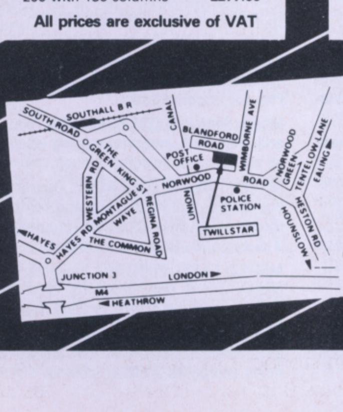

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U145. FAST WORD COUNT. Provides count of words, characters, lines, plus a mathematical check sum, which allows you to compare text files for changes.
U146. APPOINTMENT REMINDER. Stores data on disk like a daily appointments diary. Prints details of next 7 days.
U147. PRINT WITH NUMBERED LINES. Great for listing source coding.
U148. SIMULTANEOUS EDIT of multiple text files. Lets you make the same text changes to several files at once.
U149. WORD LENGTH ANALYSER. Checks the length of words in text and compares with readers' level of schooling.
U150. TEXT CHECKER. Examines Wordstar files for typing errors such as missing brackets and quotes.
U151. TEXT FILE SORT. Fast and works with very large files.
U152. LIST NON-ASCII BASIC FILE without loading Basic. Also helpful for listing if you don't have Basica/GWBasic.
U153. PAUSE LISTING so that printer will produce 55 lines on a page.

EQUIPMENT HANDLING

U406. CONTROL BACKGROUND/FOREGROUND COLOURS as displayed on your monitor.
U407. HARD DISK PERFORMANCE TEST. Checks the running of hard disks.
U408. COMPUTER LOG to keep track of amount of time of computer usage, how time spent.
U409. ELECTRIC TYPEWRITER. Converts computer into electric typewriter (for notes, envelopes, etc.).
U410. KEYBOARD OPTIMISER that will set cursor size, give type ahead buffer, more. Easy to use command line editing.
U411. MAP RESIDENT PROGRAMS. Shows program addresses, possible conflict.
U412. TRACK MEMORY as programs are running. Has windows and more.
U413. MEMORY ORGANISER. Determine, mark, release, allocate, display memory. Shows how files are loaded in memory.
U414. MULTI-SCREEN. Allows output to be directed to more than one screen. Needs CGA. Multitasking features.
U415. NEW ANSI.SYS that may aid screen presentation and allow faster execution of many functions.
U416. BLACK & WHITE MODE can be switched on colour graphics card.
U417. TIMEPARK HEAD of hard disk after a specified time has elapsed.
U418. SET 40 or 80 screen columns BW mode on colour systems.
U419. STATUS REPORT on system, including information about drives, memory available.
U420. SPEED TEST (1) checks processor speed and compares with IBM-PC. Similar to Norton test.
U421. SPEED TEST (2) checks computer speed in two areas, including Sieve calculation and track to track access time, and compares with IBM-PC.
U422. SPEED TEST (3) comprehensive checks on processing, including block write, register/memory, multiply, divide, stack operations, far jumps, etc, and compares with IBM-PC.
U423. RAM TEST. Tests and tests and tests ram. Identifies faulty memory.
U424. DOS ENVIRONMENT VARIABLE EDITOR. Make changes to edit path, prompt, etc.
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WHAT IS A DATABASE?

Mike James rushes into record keeping, where novices often fear to tread

The promise of the PC1512 is that it will totally automate your office and your life by removing the need to use scraps of paper to record information. Instead, everything will be immediately available and organised, and the cost and trouble of record keeping will be reduced to an absolute minimum. If you want to know someone's address just type in their name and hey presto it appears on the screen.

Handling information in this way is usually put forward as the main characteristic of a computer – just as a hammer knocks in nails a computer stores, organises and retrieves data. But when you actually get to grips with a PC things often turn out differently.

Using it for document preparation with a word processor or for balance sheets and sales statistics with a spreadsheet usually goes well – the bonus you might not have expected. But many users find themselves still relying on traditional paper card files long after they have grown accustomed to their PC1512 and have developed sophisticated ways of using it for other applications.

The difficulty is due partly to the existence of a wall of mind-numbing jargon and partly to some very unsuitable applications programs being offered to complete beginners. Record keeping, or database as the jargon would have it, is often the beginner's Waterloo. After a brief and abortive initial encounter database remains a distant goal – "one day I must get all these files on computer.".

The good news is that as long as you choose a database program to suit the type of record keeping which you are interested in then it is as easy and often more rewarding than word processing and spreadsheets combined. The trick is not to pick a database that is more sophisticated than you actually need. Find one that was designed to fit in with the sort of thing that you want to do.

It is true that a sophisticated database will do anything and in this sense you can't go wrong but the catch is that *you* have to make it do it and this is usually a mammoth task. On the other hand a simple database program will be limited but there will be a range of applications that it can handle immediately.

GLOSSARY

Database: A file of records or a database applications program.

Dbase: One of the first and most powerful database programs.

DBMS: DataBase Management System – that is a database program.

Flat file: A simple file of records (see multi-level file).

Field: One entry in a record.

Index field: A field that determines the order of a database.

Key field: Usually the same meaning as Index field.

Mailing labels: Sticky labels printed with names and addresses.

Multi-level file: A database consisting of a number of files with different record structures.

Record: A collection of fields.

Record structure: The way that a record is made up of fields.

Relational database: A database.

Report: A summary of the contents of a database.

Report generator: A facility to obtain a summary of the database.

Records, fields and files

The key to understanding database programs is to realise that, no matter how strange they may appear, they are almost identical to our traditional record keeping methods. A database program works with a file of records that has many similarities to a box of card records.

Each record has the same layout and is divided up into a number of fields. Each field has a name and is used to record a particular type of information. For example, a record card holding a name and address might have three fields called NAME, ADDRESS and TELEPHONE.

Database Doctrine: Principle One

A database is a file of records and a record is a collection of fields.

There are some differences however because a computer record is slightly more restrictive than a paper record. For example, if you leave three inches of space on a paper card for a name field then you can always accommodate the occasional extra long name by writing very small but there is no equivalent of writing very small for a computer record.

When you define a computer record you have to state the maximum number of characters allowed in any field. If you specify more than you need then your records will take more space to store but if you specify too few there is little you can do to accommodate a longer entry.

A field has a fixed size, and usually a

YES, WE USED TO HAVE ACRES OF FILING CABINETS STUFFED WITH PAPER - NOW THEY ARE JUST STUFFED WITH DISCS!

fixed type as well. Beginners often find it difficult to see the reason why you have to say whether a field is going to hold text or numeric data. It is even more confusing to discover that a field such as TELEPHONE, which is clearly going to contain a number, should be defined as a character field. The main distinction is that a character field is something that you would not expect to involve in arithmetic of any sort.

Many database programs offer additional special types such as date fields and logical (YES/NO) fields. These additional types are really only provided to make the database easier to use but they can be an unnecessary source of confusion to the beginner.

Database Doctrine: Principle Two

A field has fixed size and records information of a given type. The main field types are character and numeric.

Ordering your data

You may have entered thousands of record cards' worth of information and in this situation finding a particular card is no mean feat. To find a card in a traditional card file you would make use of the order (hopefully) that the cards were stored in.

If the cards were stored in alphabetical order by surname then finding a record card for Smith would be easy. But if they were stored in order of National Insurance number then finding a card for Smith would be next to impossible.

Clearly, what you can find quickly depends on which field is used to place the cards in order. A field that determines the order of the database is usually referred to by one of a number of possible jargon names – key field, index field or sequence field are typical.

One big advantage of a computer database is that you can maintain a number of different orderings of a file – almost at the same time. In other words, you can generally define more than one key field and so find records on the basis of a number of different types of information. For instance, if you defined *SURNAME* and *Tel_No.* as key fields it would be just as easy to look for a card for Smith as for 04293272921.

If keeping a file of record cards in more than one order at a time seems magic I'd better tell you that all that happens is that an index is constructed for each key field that you define. The records usually stay in the same order, it's just a matter of which index you use to find a particular record.

Some database programs hide the existence of indexing from you and just talk in terms of key fields; others make you fully aware of what is going on by forcing you to create and use an index file based on a particular field. It doesn't really matter how it's done, the result is the same.

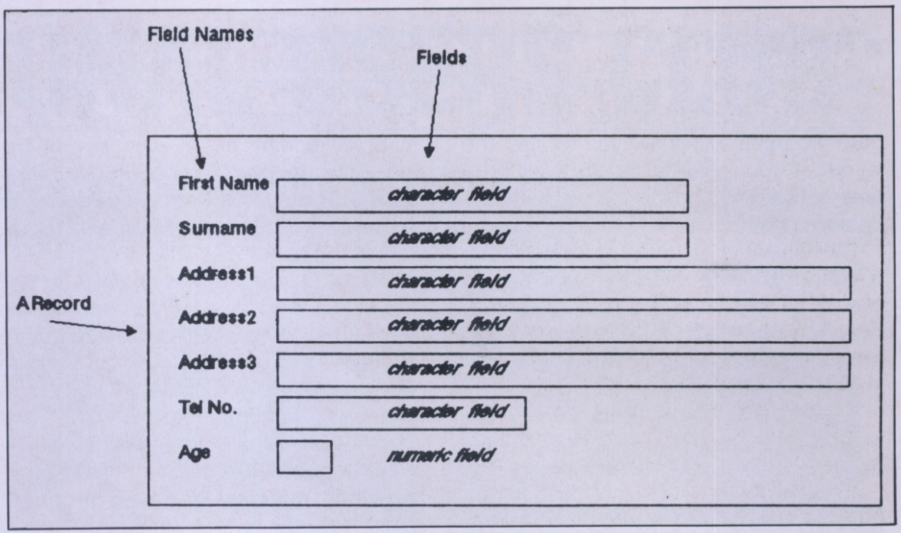

Figure I: A typical record

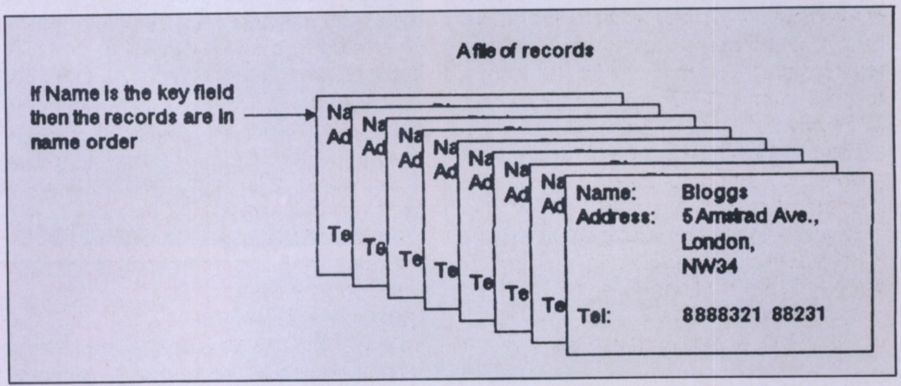

Figure II: A file of records

Database Doctrine: Principle Three

An index field determines the order of the records.
You can search for a record by index field.
Searching for a record on non-index fields may be difficult if not impossible.

Using a database

Before you can start using a database you have to create it. This seems obvious, but you would be surprised how many beginners find the initial stage difficult because to create a database you have to have some idea how it will be used. The first step in database creation is defining the field types and lengths. (You may also have to specify how you want the record displayed on the screen but the friendliest databases will try to do this for you.)

Determining the field types is usually easy enough – just ask yourself the question: "Do I want to do arithmetic with this field?" If the answer is yes then it should be numeric, if no then it should be character, date or logical depending on its nature and what your database program offers.

Specifying the field lengths is always the hardest part – how long is a name, an address and so on. In most cases the easiest way is to count how long a few examples are and then allow, say, five extra characters. You might find that your first guess is wrong but this is nothing to worry about. You should expect your first attempt at defining a database to need modification, and this is true of beginners and experts alike.

To make things easier, always try a pilot

Turn to Page 32 ▶

◀ From Page 31

version of a database before entering the bulk of your existing records. Most database programs will allow you to alter the layout of your records, but this can be a time consuming and difficult task if your database files are already large.

The remainder of the database definition is concerned with choosing which fields should be key fields. As this determines how you can search for a record this too often needs modification following a trial of your pilot database.

Once created, a database will have to be updated – and used. Looking up a particular record is usually done by specifying the value of a key field. Your computer will then show you the first record that matches your specification and allow you to examine other records close to it.

Database Doctrine: Principle Four

First you must create a database definition: Field types and lengths, key fields and card layout. Only then you can enter data and search for records and so on.

Updating is simply a matter of modifying existing records or entering new ones. The simple operation of entering new records can sometimes trap the unwary because one or two database programs don't automatically update all or even any of the index files to take account of new additions. This can result in a card being out of sequence until you remember to do something about it.

Database programs also differ in the ways that they will let you specify the record that you are looking for. For example, some will only find a record with an exact match. So you could look for Smith but if you couldn't remember if it was Smith or Smythe you were looking for you would have to try both.

Slightly more sophisticated programs will allow you to look for Sm?th? (the ? indicates that you don't know the letter) and would find Smith or Smythe. Whether you need such complicated search facilities obviously depends on your application.

What is sophistication?

So far only the most simple of database programs and database applications have been considered. Even the simplest of databases usually include a little more than this and the more sophisticated ones offer a lot more.

Of course, once you start to elaborate on the simple cardfile idea you benefit more and more from the particular power of the computer to handle data, but you enter the realm of where jargon and experts start to make things sound difficult.

In truth they are only difficult if you aren't very clear about what it is you want to do. As long as you have a good idea of how you want to manipulate the data in your files you should be able to make sense of the manuals.

The important point is that they will only become comprehensible once you have started to use your database so don't rush in. You will find an outline of some of the more advanced database features in the accompanying panel – don't be put off by their seeming complexity. ■

Database Doctrine: Principle Five

Never try to implement or even think about the more advanced ideas that you might have for your database until you have implemented the simple ones.

DATABASE CHECKLIST

***Limitations:* What is the:**

☐ Largest record it can work with?
☐ Maximum field size?
☐ Maximum number of records?
☐ Maximum number of index fields it can use?
☐ Maximum number of database files it can work with?

***Ease of use:* Does it provide:**

☐ User friendly menu operation?
☐ Low jargon messages and commands?
☐ A card-like display format for data entry?
☐ An easy to use on-screen editor?

***Flexibility:* Does it offer:**

☐ Password protection of files?
☐ Report generation?
☐ The ability to alter display formats?
☐ Mailing labels as a separate option?
☐ A database programming language?
☐ Update of one file by another?
☐ The ability to calculate one field from others?

***Training:* Is there:**

☐ A good manual with plenty of examples?
☐ Online help?
☐ A telephone hotline?
☐ A training course?

Advanced database features

- *Report generation*

One of the first advanced things that you are likely to want to do is generate a report from the information stored in your database files. This can range from printing sticky name and address labels to producing summaries of stock holdings and such.

The most commonly heard criticism of database programs is that they don't provide a simple way of doing something trivial like printing labels. In other words, you have to power up the full report generating capabilities even if you don't need them.

- *Multiple files*

One of the most complicated types of database systems is where one set of records have to be updated using the information contained in another database. This may be complicated but is potentially the most rewarding because record merging is one of the most difficult things to do manually.

The most obvious example of this sort of thing is in keeping stock control records up-to-date by merging with a file of delivery and sales records. Some database programs are specially constructed to handle this sort of situation without the need for multiple files.

You can usually avoid the need to merge records by including a certain amount of manual processing. For example, you could update stock control records manually from a print out of orders and deliveries.

- *Variant records*

Nearly all simple databases assume that every record in a file will have an identical layout and this often doesn't match reality. For example, if you need to keep different information on male and female employees then it is irritating to have to design a single record that includes information about both types.

Another example occurs where a "follow on" record is sometimes required to store extra information that won't fit onto the main record. Dealing with this type of database is really best left to the experts.

- *Database programming language*

Some database programs provide what amounts to their own programming language for manipulating records and producing reports. For example, the now classic dBase II program has such a sophisticated set of commands that database applications are programmed using it. The price paid for this flexibility and power is that database programming languages are very difficult to use for anyone who is not a programmer.

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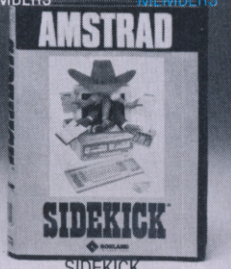

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DATABASE OVERVIEW

Peter Jackson takes a look at the database market, and offers some guidelines to newcomers.

NOT only is there a vast amount of database software available for the PC1512, but there are many different types. The term database can hide a multitude of sins. This diversity can be bewildering to a newcomer looking for a database and this very personal selection from the wide range available gives some idea of industry standards. We'll look at them in more depth when reviewing them individually.

dBase III Plus

Ashton-Tate's dBase II was the standard database manager in the early days of microcomputing, and dBase III is essentially the same product updated for the new world of 16-bit PCs, hard discs and networks. Like the older version it is basically a command-driven database with every operation controlled by typing dBase instructions at a dot prompt, just as MSdos commands are typed at the A> prompt.

This approach means that users can write dBase programs, sets of commands executed by a database 'engine' just as Basic commands are executed by an interpreter. These programs can tailor the database to particular applications, with menu-driven user-friendliness for beginners, as long as the programmer programs them in.

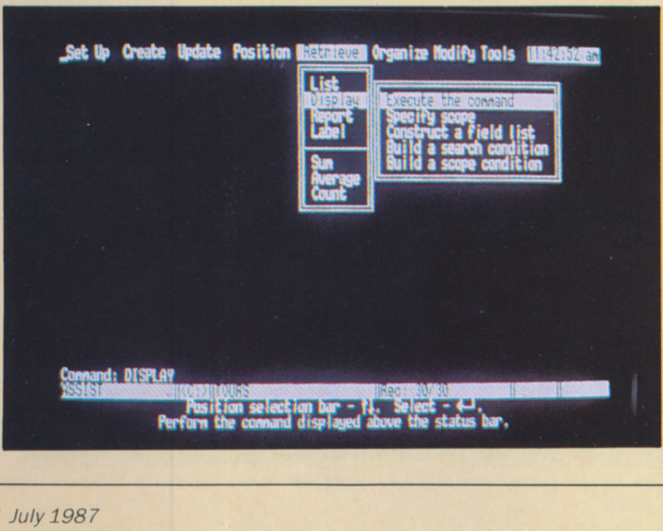
In dBase III, and the new network-compatible dBase III Plus, attempts have been made to make the database engine easier to handle. Instead of the usual blank screen and the full-stop prompt, the dBase Assistant program provides a now-standard Ashton-Tate user interface of pull-down menus combined with pop-up option boxes. On-line help is always available to dull dBase's reputation for user-hostility.

Commands selected from the menus and boxes are entered on the dBase command line, and the Assistant allows users to carry out most common data entry and retrieval tasks without resorting to the more complex programming options. But of course, users can go back to the dot prompt if they want.

There is power to spare in dBase III Plus: up to 10 related files open at once; faster sorting and indexing even than dBase III; a screen painter for forms design; and a query system to automate data retrieval. There are visual combinations of pairs of files to get a different view of the data; an applications generator to create custom applications with minimal programming; and import and export of 1-2-3, DIF, SYLK, dBase II and Ascii format files. It even works multi-user over local area networks, with special packs available to hook up extra dBase nodes on the network.

This is the industry standard, the one to aim at and the one to beat, and it is still pretty good for its age. It is fast, powerful and more usable thanks to the Assistant, and still the leading option for the creation of custom database applications. The big drawback is the price; otherwise everybody would have one.

Product: dBase III Plus
Price: £684.25
Supplier: Ashton-Tate, Oaklands, 1 Bath Road, Maidenhead, Berkshire SL6 4UH.
Tel: 0628 33123



```
Command: DISPLAY
ASSIST          ||<C:>||TOURS             ||Rec: 30/30
         Position selection bar - ↑↓.  Select - ↵.
       Perform the command displayed above the status bar.
```

dBase III Plus: Assistant in use

VP Info

VP Info's main claim to sales is that it is compatible with Ashton-Tate's dBase II and III, so that data files and dBase programs can be transferred unchanged to the cheaper package.

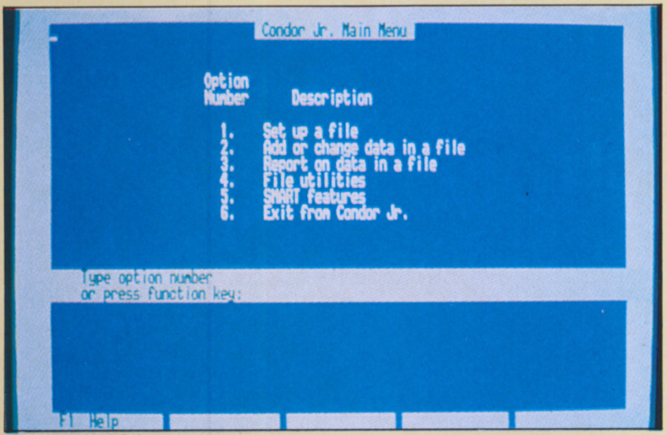
But there is more to VP Info than a mere clone. For example, there are more than 100 extra commands in the Paperback Software package than in the older Ashton-Tate one; the database programs, written in the dBase language, are compiled rather than interpreted for extra speed; and there are other useful features like a macro generator to simplify repetitive jobs.

Naturally, it is a fully-relational database that allows permanent linking of several files and retrieval of data from any combination of them according to the dBase programmer's wishes.

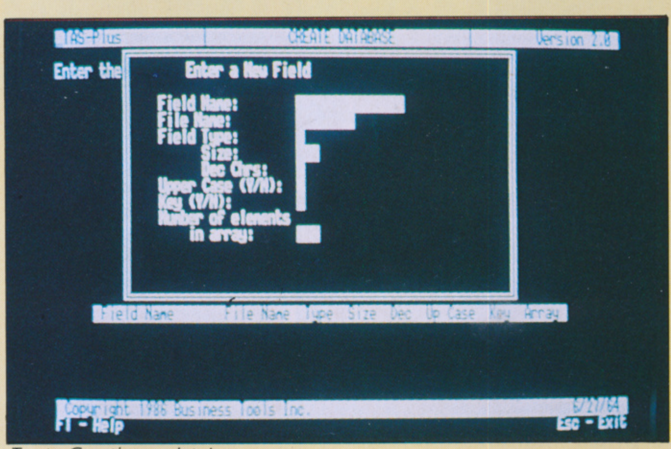
All this power, however, is paid for at the expense of ease of use. There is no easy-to-use front-end on VP Info as there now is in dBase III, and all the commands have to be typed in at an MSdos-like prompt or entered as programs.

Creating a database, designing screen formats for data entry and reporting, and then automating the retrieval of the right data is a complex business involving the use of the CREATE, APPEND, LIST, DISPLAY, WRITE, REPORT, FIELDS, HEADING, TITLE, PICTURE, and SUBTOTAL commands, along with logical operators like AND and NOT.

While it is easier to use the built-in screen and report formats, they are crude, ugly, and hard to read on either screen or printer, and most users will want to learn



Condor Jr: Main menu



Tas+: Creating a database

enough commands to improve it.

In fact there are so many commands available that it is pointless to list any more; there are more reserved words than in many programming languages like Basic and C.

There is no doubt about the power of VP Info, comparable in facilities but faster than dBase III. There is more doubt about the willingness of low-cost PC users to do the amount of programming work required, particularly since PC databases now do most common functions simply or automatically.

Product: VP Info
Price: £99.99
Supplier: Newstar, 200 North Service Road,
Brentwood, Essex CM14 4SG.
Tel: 0277 220573

Condor Jr

If VP-Info seems overly-complex by today's database standards, Condor Jr seems almost spartan. Its aims are limited to managing a single data file at a time, with no clever tricks or display techniques, and it does this unambitious job adequately.

Rather than the command-driven approach of VP-Info or dBase III Plus, Condor Jr is menu-driven so that the user is presented with a minimum number of options at any stage. The main menu has just five options besides EXIT that will set up a datafile, add and edit data in a file, produce a report, handle system utilities, or record a set of keyboard actions to automate some database functions.

Selecting any of these brings up a new sub-menu with a similar – often smaller – set of options.

Selecting items from any menu or sub-menu is done by moving the cursor or typing a number, and function key use is limited to F1 for help, F3 to step back up a menu level, and F10 to exit.

Forms design is done on the screen using the cursor keys, although the size of each field has to be entered by typing the right number of underline characters rather than 'painting' on the form until the field looks right. Data entry and display generally uses this form design, although a simple list of output data can be produced if needed.

Getting information out of a Condor Jr file uses a simple query language, where a command like LIST FirstName WHERE LastName IS Smith AND Town IS Manchester is entered and acted upon.

In this case, the first names of all the Mancunian Smiths would be listed on screen or paper. The formatting options for the output data are very limited, and there is no chance of clever report design and presentation.

Overall, Condor Jr looks crude. Compared with VP-Info for the same price, it looks very crude indeed. But, if a simple, no-frills single-file database manager is what you need, then Condor Jr may be worth consideration. It was reviewed in full in the May issue of *PC Amstrad.*.

Product: Condor Jr
Price: £99.99
Supplier: Caxton, 10-14 Bedford Street,
Covent Garden, London WC2E 9HE.
Tel: 01-251 9494

GBase

Although Gem is provided as standard on the Amstrad PC1512 and a number of other machines, there is still surprisingly little in the way of low-cost software written to work with the Gem standards and the mouse. True, expensive packages like Xerox's Ventura desktop publisher and McDonnell-Douglas' Crossroads CAD package exist, but that is way out of the Amstrad league.

SPI's GBase was the first cheap Gem database for the PC1512, coming out of an original project for Digital Research. It has now been followed by Precision Software's Superbase Personal (reviewed elsewhere in this issue).

All the functions provided by Gem, including mouse support, pull-down menus, pop-up file selection and information boxes, and icons have been used by SPI, and this is clear even when first loading the program from the Gem desktop.

The main display shows the query and list windows that are used to extract data from existing files; the specification for the data to extract is entered in the query window and the selected data is listed in the list window.

GBase's strength lies in the flexibility of its query system, built around a language called Sequel which in turn is based on IBM's mainframe query language, SQL. Using simple selections from pull-down menus and dialogue boxes, complex queries can be built up to extract data from multiple files in a fully relational way.

On-screen design is easy thanks to the Gem features, so that 'screen masks' – the on-screen formats that GBase uses to display information – are painted on the screen with the mouse until they look right. The fields can be placed in any position, and extra text can be added in a variety of typefaces and styles.

Other strong features are the variety of field attributes – giving control over the accuracy of entered data, the flexibility of reporting facilities from multiple files via Sequel, and the overall ease of use made possible by Gem.

Product: GBase
Price: £99.95
Supplier: Software Products International,
13b Horseshoe Park Estate, Pangbourne,
Reading RG8 7JN.
Tel: 0735 74081

TAS+ (#69)

TAS+, like dBase and VP-Info, is partly intended for use by programmers to develop applications that will be used by untrained operators. Although TAS+ is similar to VP-Info in including a real

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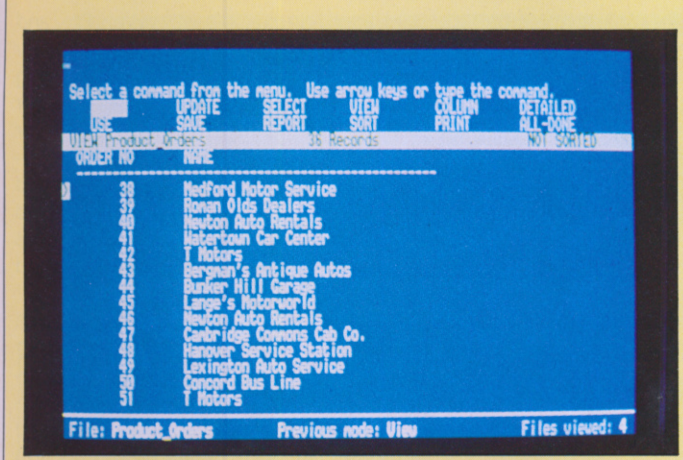
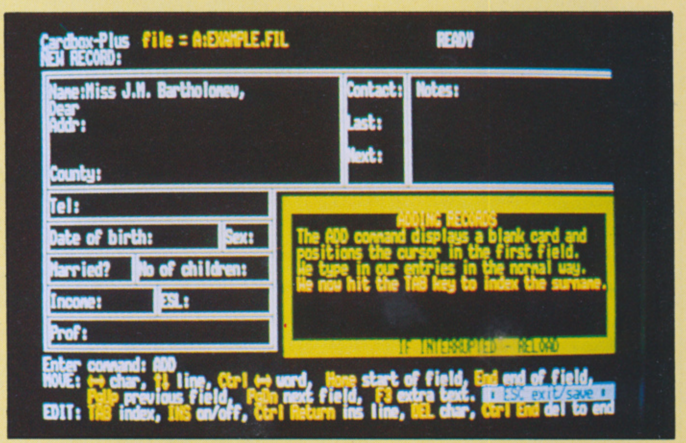


```
Select a command from the menu.  Use arrow keys or type the command.
           UPDATE      SELECT      VIEW        COLUMN      DETAILED
  USE      SAVE        REPORT      SORT        PRINT       ALL-DONE
VIEW Product_Orders              36 Records                  NOT SORTED
 ORDER NO   NAME
 --------------------------------------------------
      38    Medford Motor Service
      39    Ronan Olds Dealers
      40    Newton Auto Rentals
      41    Watertown Car Center
      42    T Motors
      43    Bergman's Antique Autos
      44    Bunker Hill Garage
      45    Lange's Motorworld
      46    Newton Auto Rentals
      47    Cambridge Commons Cab Co.
      48    Hanover Service Station
      49    Lexington Auto Service
      50    Concord Bus Line
      51    T Motors
File: Product_Orders        Previous mode: View           Files viewed: 4
```

Cornerstone: View mode



```
Cardbox-Plus  file = A:EXAMPLE.FIL                  READY
NEW RECORD:
Name:Miss J.M. Bartholomew,           Contact:  Notes:
Dear
Addr:                                 Last:

                                      Next:
County:
Tel:
Date of birth:          Sex:                 ADDING RECORDS
Married?   No of children:    The ADD command displays a blank card and
Income:     ESL:              positions the cursor in the first field.
Prof:                         We type in our entries in the normal way.
                              We now hit the TAB key to index the surname.
                                      IF INTERRUPTED - RELOAD
Enter command: ADD
MOVE: ↔ char, ↑↓ line, Ctrl ↔ word, Home start of field, End end of field,
      PgUp previous field, PgDn next field, F3 extra text.  ESC exit/save
EDIT: TAB index, INS on/off, Ctrl Return ins line, DEL char, Ctrl End del to end
```

Personal Cardbox Plus: Adding records

◀ **From Page 35**

compiler to speed up operation, it is different in that the TAS programming language is not dBase compatible – and can therefore be made easier to use.

For the database user rather than the programmer, TAS+ has some attractive features. It has pull-down menus and pop-up windows to control the main database operations, like dBase III Plus' Assistant, and it is simple to call up data from a stored file and display it on screen. The power of TAS+ is that it has a program generator built in so that creating a database is equivalent to making the program write a TAS program for you. The downside of this is that creating a multi-file database involves editing the TAS program that has been created, although the editing process is eased by a built-in (and helpful) editor program.

Programmers can create their own pop-up windows and menus using the tools provided, so that untrained users can be led simply through the options, and can – if they wish – write TAS programs from scratch using the editor. In a world where dBase programmers are in demand and TAS programmers as yet are not, there is a lot of incentive to learn dBase and not much to learn TAS. For those who do learn, TAS+ can help build complex applications with up to 16 open files and more. And it is easier to get into than VP-Info.

Product: TAS+
Price: £119.85
Supplier: Megatec, 111-113 Wandsworth High Street, London SW18 4HY.
Tel: 01-874 6511

Cornerstone

Customers could be forgiven for thinking Cornerstone is a game, thanks to the Infocom name on the packaging. Infocom is best known for its series of high-quality text adventure games, and Cornerstone was its first – and so far only – business software release.

The program, however, has little to do with Infocom's previous products. Unlike the games, there is no natural language interface for commands to be typed in English; instead, Cornerstone uses an unusual menu structure. The menus are one or two lines at the top of the screen, and the items are selected either by moving a highlight bar along the menu with the cursor keys or by typing in enough of the item's name for the program to realise which one is meant. Pressing the space bar enters each item into a separate command line, so that complex commands can be built up before pressing the Enter key executes the whole line.

This can be clumsy, but Infocom provides an instant help key, F5, which puts all the currently available options up on the screen.

In use, Cornerstone is a reasonably powerful non-relational database. Data from one or more separate files can be placed into the current data file or report for viewing or printing, although no physical data is actually transferred. The looking-up is done at display or print time to make sure that the data found is up to date.

This structure, combined with Cornerstone's innovative use of sub-records – so that each record in a file, say, can have its own sub-file, made up of sub-records which can be treated separately – means that complex and powerful multiple-file databases can be set up and used easily but without the rigour of true relational structures.

Other features worth mentioning are forms design by screen painting, file display in list or column format or a record at a time and the selection of particular records using the 'query by example' method – typing the parts of the record you know into an on-screen form, and getting the computer to fill in the rest.

Cornerstone is a friendly, chatty database with a good manual, excellent and useful sample files on disc, and reasonable performance. Not recommended for single-floppy machines, but worth a look for twin-floppy and hard disk systems.

Product: Cornerstone
Price: £69.95
Supplier: Newstar Software, 200 North Service Road, Brentwood, Essex CM14 4SG.
Tel: 0277 220573

Personal Cardbox Plus

Cardbox has been around for several years, steadily improving in power and facilities while maintaining its index-card-style user interface. This interface means that users lay out the contents of each database record on the screen to look like an index card, and retrieval is also done in card-index style, one screen 'card' at a time.

Each card can be 132 columns wide, and can be divided as the user wants so that the whole record can be filled with one lump of text, or divided into more than 20 tiny fields. This flexibility is remarkable, and allows the creation of databases where text is a major part of the stored data.

Cardbox is particularly good at searching large text fields, and useless at any kind of mathematical work such as totalling fields or working out VAT on each record's cash amounts.

Such free-text retrieval, where a record containing a particular word in a whole screen of data can be found instantly, is becoming increasingly important in applications using techniques like CD rom storage to provide enormous amounts of textual data.

The Cardbox design allows text retrieval to be speeded up by clever indexing of individual words or phrases in text fields.

Personal Cardbox Plus has been cut

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down slightly from the full, more expensive multi-user version, so that, for example, it is not possible to run a search based on the contents of more than one field at once. However, at the new price it will be going to a market that will relish a user interface that looks so familiar, while retaining enough flexibility and power to satisfy most database needs.

Product: Personal Cardbox Plus
Price: £149.50
Supplier: Business Simulations, Scriventon House, Stelvhurst, Kent TN3 0TU.
Tel: 0892 863105

Reflex

Borland International's Reflex is an odd kind of database, which originally cost £395 and was intended for analysis work on files created by other programs like Lotus 1-2-3 and dBase III. Now though, with a typical Borland price cut, it is gaining support as a database in its own right.

This difficulty in categorising Reflex extends to its use; in fact the program can look like a database, a spreadsheet, a charting program and a report generator – with any three of those functions displayed in screen windows at any one time.

Borland calls these functions 'views', implying that they give different insights on the same set of data. Indeed, the Form, List, Graph, Crosstab and Report views do just that.

The Form view is the traditional database display, using a user-defined form to display the current record, while List shows several records in a tabular form with records as the rows and fields as the columns, and Graph plots selected data in one of several standard chart formats.

Crosstab is rather more complex, and involves displaying a cross-tabulation of user-defined summary information from the current set of data.

For example, if each database record has a sales rep's name, a sale amount, and the product type involved in the sale, Crosstab could produce a table showing total sales amounts for each sales rep and for each product with sales rep names as the columns, product types as the rows, and the total sales amounts entered at the intersections. It is harder to explain than to demonstrate, and is a powerful tool in analysing existing data.

The Report view in Reflex is also a powerful feature, and gives Reflex its subtitle of 'The Analyst'. Report can take data from Lotus 1-2-3, dBase, pfs:File, and other programs and massage it into new reports using Reflex's superior formatting options. As the program uses windows for display, it is no surprise that the user interface of Reflex mostly involves pull-down menus, pop-up option boxes, and the other trademarks of graphics-based interfaces like Gem. However, Reflex does not use Gem but its own menu and command structure.

In a way, it has more in common with integrated software packages linking applications such as spreadsheets, databases and word processors. It has sufficient power to be a good single-file database, limited in scope by the need to keep all the data currently being analysed in ram all the time. On the other hand, its graphics and report formatting back up the unique Crosstab view to make Reflex ideal as an analytical tool for data brought in from elsewhere. And at the price, it is a good deal whichever option is more attractive. ■

Product: Reflex
Price: £114.95
Supplier: Borland, 1 Great Cumberland Place, London W1H 7AL.
Tel: 01-258 3797

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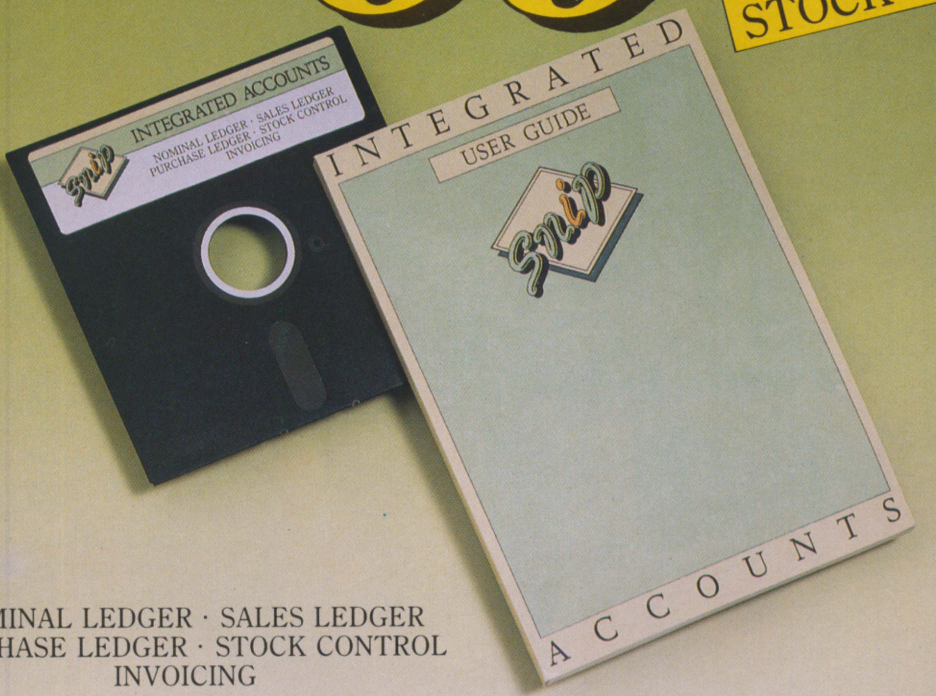

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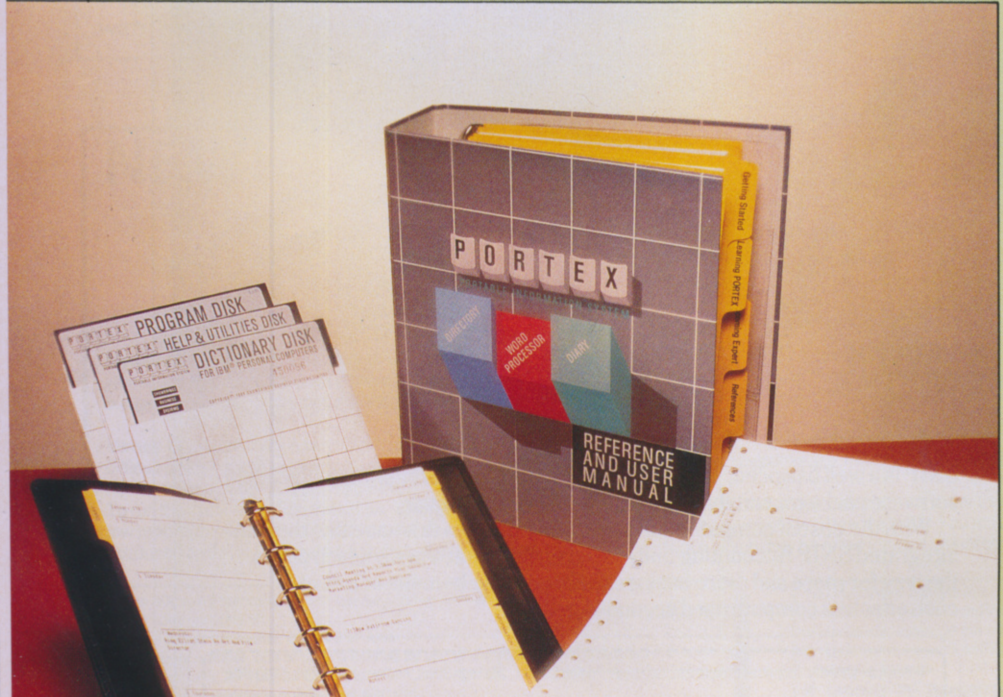
Christopher Payne gets himself organised with the program on this month's PCA disc



ONE of the most fashionable accessories for any aspiring executive is the ubiquitous Filofax or Time Manager. Some are little more than glorified diaries, while others come complete with manuals to show you how to completely revolutionise the way you work.

It was inevitable that eventually somebody would produce a computerised version and Portex is one such product.

What you get in the big colourful box is a leather ring binder measuring 160mm by 115mm complete with divider sheets, a thick manual, pack of paper, a keyboard template to fit over the function keys, three blank Portex disc labels and, last but by no means least, three discs.

The idea is that you type in all your diary details and the contents of your address book, then print out on to special Portex paper which can be inserted into the ring binder.

One disc contains the Portex program files (as on the PCA disc). Another holds the spelling checker and dictionary files and the third consists of the online help file, printer drivers, example data files and various utility programs.

To start up you simply boot MSDos, type PORTEX and hit Return. You will be presented with a menu offering Address Book/Directory, Diary, Word Processor, Change System Options or Exit.

The Address Book allows you to store the names, addresses and details of friends or business contacts. Within minutes I was transferring everything from my pocket address book into the computer.

You can scroll up and down the sorted list and simply press Return to edit an existing record. To add a new one press f7 to Create and flip to the Input screen.

The software automatically puts the first letter of each field and the first letter after a space into upper case, so the only time you need to hit the Shift key is when entering a post code. This feature can be switched off if you prefer.

You can include up to 14 lines of notes for each entry, which is useful, say, for a salesman who wants to record a client's personal details. After inputting the data you press f8 to Accept.

When it comes to producing a hardcopy, you would normally force page breaks at each new letter so the pages can be slotted between the alphabetic dividers in the binder.

But it is also possible to print out the addresses in a continuous stream, or put one address per page – useful for printing on to index cards.

There is an option to print out just the names and telephone numbers, and a further one to determine the number of lines of notes to output (0-14).

On selecting the Diary program, up comes the current week with today's date

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highlighted. Use the cursor keys to choose another day, pressing the 5 key in the centre of the number pad to make bigger jumps through the weeks and months into the past or future.

A Calendar feature makes it easy to go to any specific day in the 200 year period that the Diary covers.

To make an entry press f7 at the required date and type in the text. If you specify a time, the appointment is slotted into the right place in your schedule.

I used the Repeating function to put down my ballroom dancing class for every Sunday for the next year, and to schedule an important meeting for the first Wednesday in every month.

I also set nagging reminders for jobs that I kept putting off, until eventually they got done and could be deleted.

There is a useful merge facility which means that, for example, a business and personal diary can be combined with ease. The Unique command can then be used to remove duplicate entries. This option is also available in the address book program.

For printing, simply insert the Portex paper in the printer – taking care not to tear the perforations – and you are ready to go.

The software allows you to print any format from one to 14 days on each page, depending on how you prefer to work.

The word processor is a WYSIWYG type: Bold and underline are clearly indicated and each page break is indicated by a row of colons.

It is useful for writing special notes pages to insert into your binder – and just as good for writing correspondence and printing it on to A4 paper.

The 80,000-word spelling checker offers suggestions when it comes across a misspelt word and new words can be added to (or subsequently deleted from) a separate custom dictionary.

The checker can also be called up to check any word in the diary and directory programs.

There is also a facility to sort lists of data, but I've not found a use for this so far.

Far more useful is the powerful mail-merge facility. You can mark particular records which require the correspondence, or use the whole or a section of a directory file.

Each letter can incorporate extra information culled from selected lines in the notes section of each directory record.

You are supplied with two sets of 100 sheets of continuous stationery: One with blue squares, the other completely blank.

Each sheet can be printed on both sides then pulled apart using the micro perforations to produce two Portex-size pages (see Figure I).

There is enough paper here to keep you going for a few months and additional boxes of 1,500 binder pages are available from Showerings for about £20. The company will also supply paper suitable for using with a Filofax system.

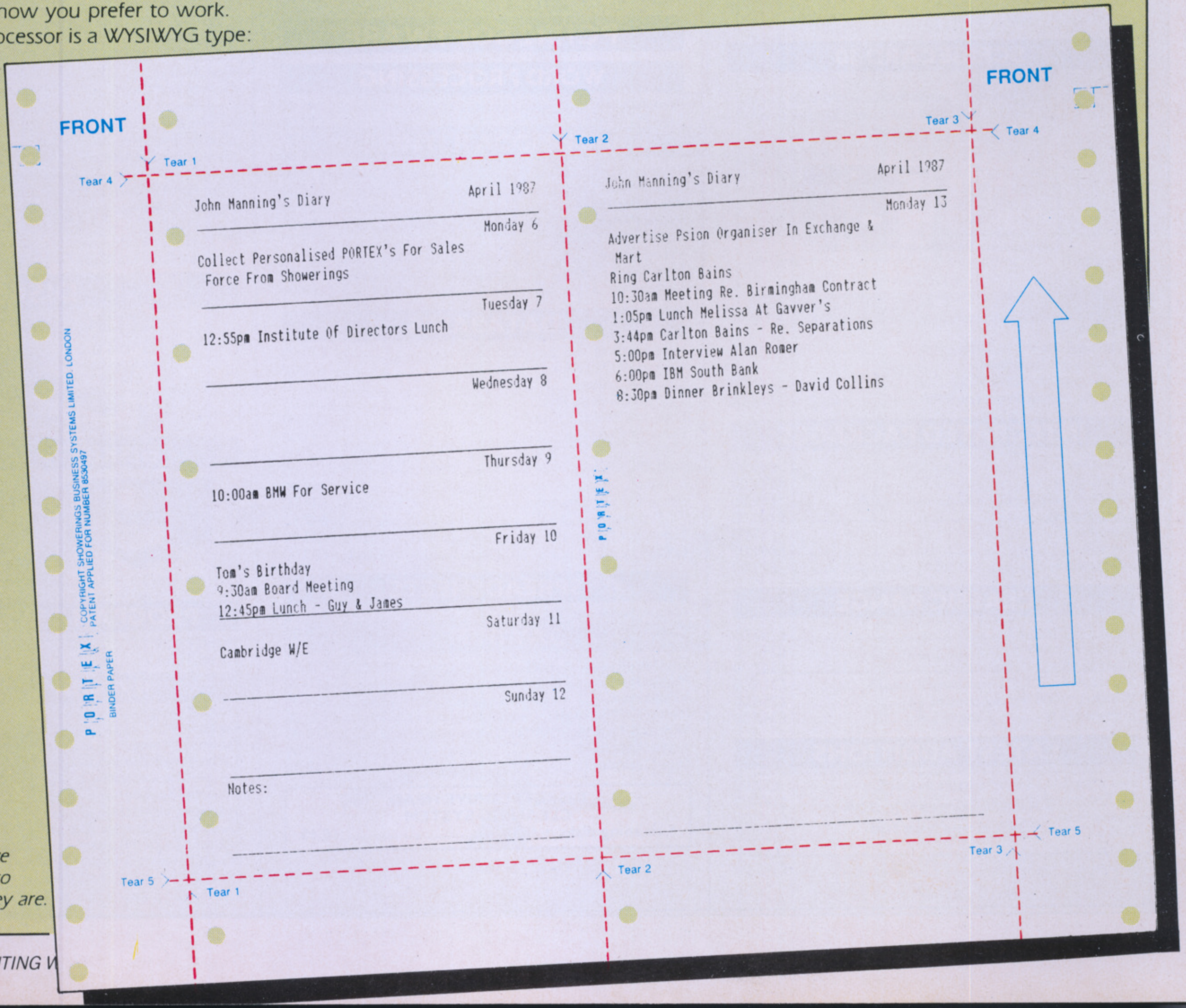
My only criticism of Portex is one of style. Some paper-based systems encourage you to assign a major task to each month, week and day. Although the Portex diary is very good, I think it could have gone a little further to help to structure a working day along similar lines.

Overall, though, this is a very professional package which has been developed with great care and consideration for its anticipated users.

All three programs work consistently – once I'd learnt to use one program, I knew them all. I rarely needed to refer to the manual, nor did I bother much with the online help.

Despite my one minor criticism I feel there are many people who will benefit a great deal from this sensibly priced package. ■

- *Product: Portex*
- *Price: £113.85*
- *Supplier: Showerings Business Systems, South Bank Technopark,*
  90 London Road, London SE1 6LN.
- *Tel: 01-922 8821*


FRONT
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PORTEX
COPYRIGHT SHOWERINGS BUSINESS SYSTEMS LIMITED, LONDON
PATENT APPLIED FOR NUMBER 8530497
BINDER PAPER
PORTEX
Tear 5
Tear 1
Tear 2
Tear 3
Tear 5

```
John Manning's Diary                     April 1987
                                           Monday 6
Collect Personalised PORTEX's For Sales
 Force From Showerings
                                          Tuesday 7
12:55pm Institute Of Directors Lunch

                                        Wednesday 8


                                         Thursday 9
10:00am BMW For Service

                                          Friday 10
Tom's Birthday
9:30am Board Meeting
12:45pm Lunch - Guy & James
                                        Saturday 11
Cambridge W/E

                                          Sunday 12


Notes:
```

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John Manning's Diary                     April 1987
                                          Monday 13
Advertise Psion Organiser In Exchange &
 Mart
Ring Carlton Bains
10:30am Meeting Re. Birmingham Contract
1:05pm Lunch Melissa At Gavver's
3:44pm Carlton Bains - Re. Separations
5:00pm Interview Alan Romer
6:00pm IBM South Bank
8:30pm Dinner Brinkleys - David Collins
```

A sample Portex sheet. Here the perforations have been drawn in to show where they are.

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(24 hours)

(0923) 41921

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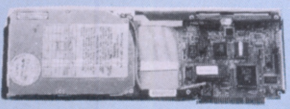

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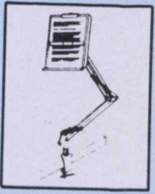

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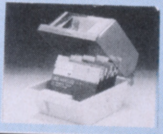

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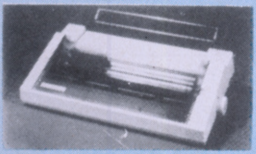

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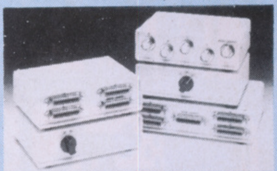

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★ £37.00 ★

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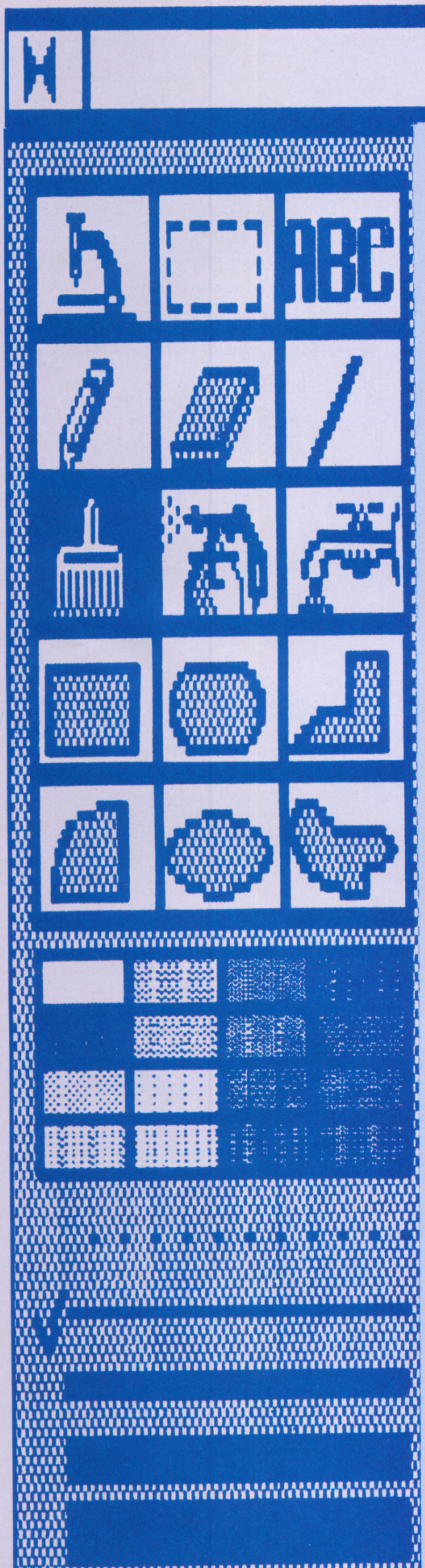
Thank You



GETTING T WITH GE

LAST month we prepared a Gem Paint disc and looked at a few of the simpler tools, such as the eraser, the airbrush and the magnifier. This time, we'll look at some of the program's more advanced facilities, and see how to make a hard copy of paintings.

In addition to the drawing tools which we mentioned last time, Gem Paint provides several 'shape tools', or templates, which can draw accurate circles, arcs, rectangles and so on.

Shapes drawn with these templates are automatically surrounded by a line of the thickness and colour shown on the left of the screen, and are filled with the currently selected pattern. If you want an unfilled shape, select NONE from the pattern boxes; if you want it without a line round it, use the dotted line option.

Simpler shapes, such as rectangles, circles and arcs, are drawn by a technique called 'rubber banding'. Select the icon for the shape you want, then point the mouse at the spot where one corner of the shape is to appear.

Keeping the button depressed drag the mouse towards the position where the diametrically opposite corner should be. When you release the mouse button, the shape you selected will be fixed on the screen and filled with the currently selected pattern. Figure I shows a circle being drawn in this way; when it is complete, it will be surrounded with a thin red line and filled with the brick pattern.

To use the polygon tool (at the right of the first row of templates) click the mouse button once to mark the first corner of the figure, then move on to the second corner and click again. As you move the mouse around, a rubber banded line will extend from the corner you have just fixed to the current position of the mouse.

Work round the figure clicking once at every corner except the last; mark the final corner with a rapid double-click and it will be automatically joined to the first point, thus completing the figure.

The freehand template (the one at the bottom right) is used for drawing shapes which don't all have straight sides. Hold down the mouse button while you work – the line drawn will follow the movement

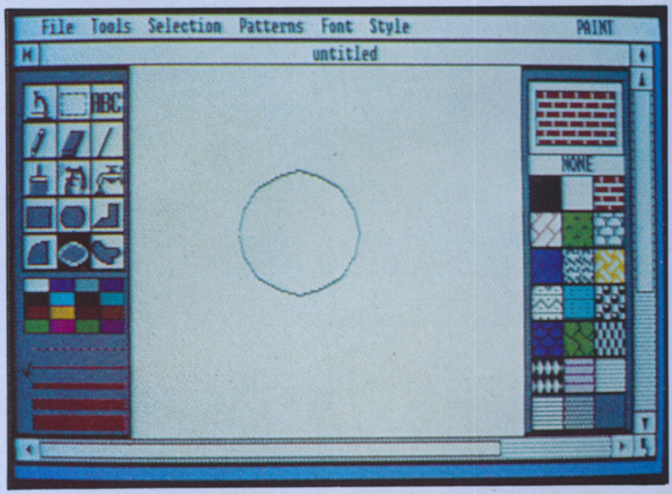


Figure I: Drawing a circle by rubber banding. When the mouse button is released, it will be outlined in red.

TO GRIPS
GEMPAINT

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Part II

John Hughes concludes his series on how to make the most of your PC's graphics program

of your mouse. When you release the button, the first and last points of the 'wiggly' line you've drawn will be joined by a straight line to bound the area.

The drawing window on the Gem Paint screen isn't as big as it might be, but it can be enlarged by removing the pattern boxes from the right-hand side of the screen. Just pop down the Patterns Menu from the top of the screen and select the Hide Patterns option, and the screen will be redrawn without the pattern boxes.

Shapes will continue to be filled with whichever pattern was selected before the patterns were hidden; to change this, click on Show Patterns from the Patterns Menu, select another pattern and then Hide Patterns again if you wish.

You can also edit the various patterns, replace them with new ones of your own, and then store the new patterns in special files.

Start by opening a new folder with the name PATTERNS on the Gempaint disc; it ought to be located in the GEMAPPS folder. On opening this folder, you will be able to save any new patterns which you

Turn to Page 46 ▶

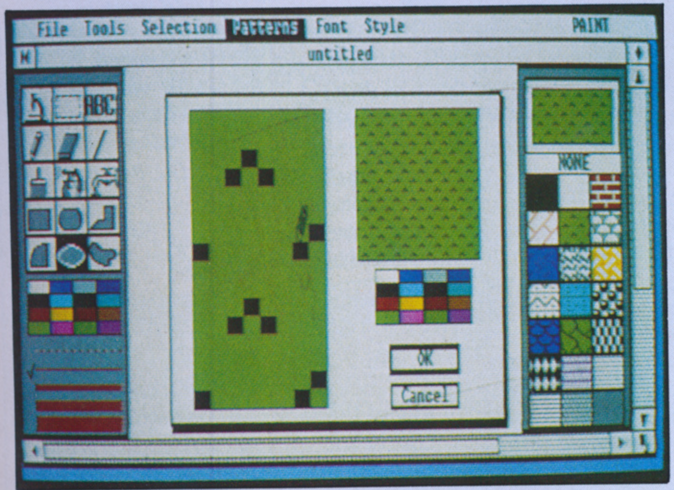
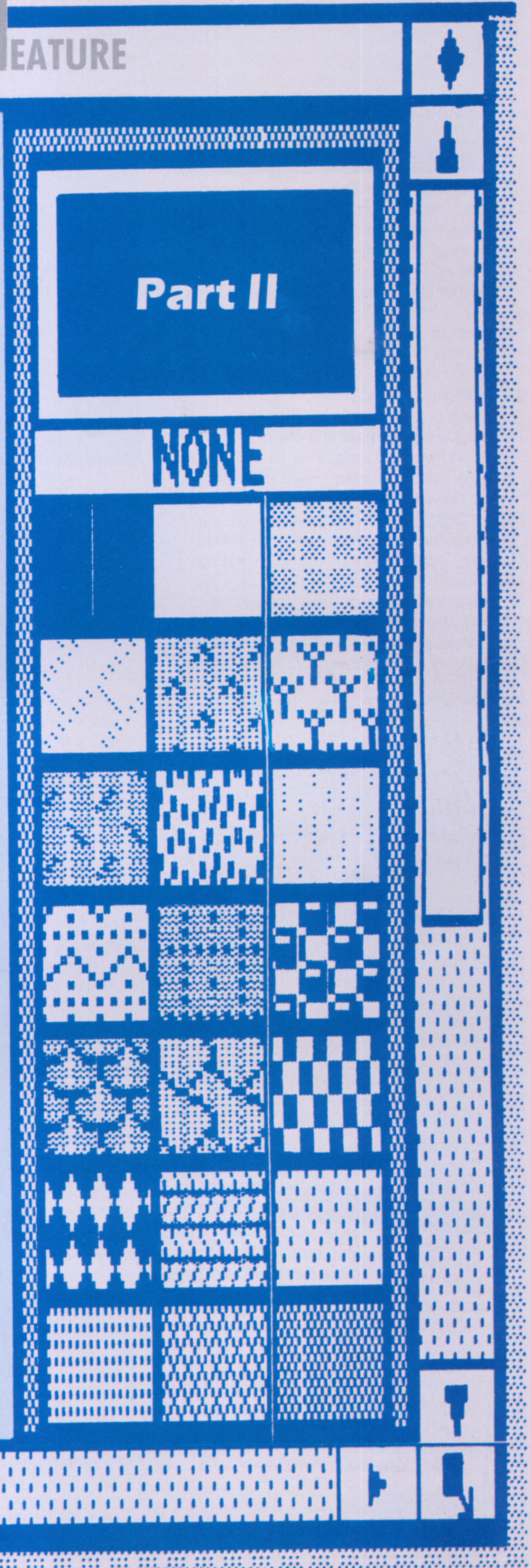


Figure II: Editing a pattern. The smaller window shows the enlarged pattern, while the larger one shows the same pattern repeated several times at normal size.



◄ **From Page 45**

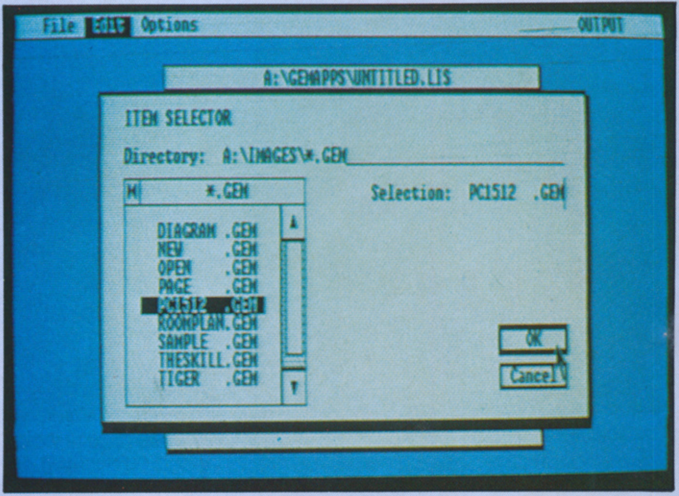
Pros and cons of Gem Paint

Although Gem Paint is a very useful and versatile program, it does have a couple of disadvantages.

First, the way it is implemented on the PC1512 means that it's sometimes rather slow, and you may have to wait for a second or so after clicking the button before anything happens on screen. If you've moved the mouse in the meantime, you may not get the effect you want.

Second, the program is much better at painting than at line-drawing and it can't handle symbols. It wouldn't be very good for creating circuit diagrams or flowcharts, for example.

Despite these failings, it's possible to do some very good work. Even if not very artistically inclined, you can use Gem Paint to modify pictures. For instance, a photograph captured with a digitiser and displayed on the screen can be edited by converting it to a Gem Snapshot and treating that as a Gem Paint file.



Directory: A:\IMAGES\*.GEM

*.GEM

```
DIAGRAM .GEM
NEW     .GEM
OPEN    .GEM
PAGE    .GEM
PC1512  .GEM
ROOMPLAN.GEM
SAMPLE  .GEM
THESKILL.GEM
TIGER   .GEM
```

Selection: PC1512 .GEM

Figure III: Preparing an OUTPUT list. Note that the Directory line reads: A\IMAGES\*.GEM.

may design, identifying them with the filetype .PAT. Then run Gem Paint and click the mouse button on one of the individual patterns you want to change.

Now select the Change Patterns option from the Patterns Menu at the top of the screen. The display shown in Figure II will appear on the screen.

Basically, the display consists of two windows and the colour palette. As you can see, the larger window contains a magnified version of the pattern you are going to edit, while the smaller window shows what that pattern looks like when repeated at normal size. There is also the usual colour palette.

To 'flood' the pattern with a solid colour, simply select that colour from the palette, point the mouse at the smaller of the two windows and click the left-hand button; both windows will immediately be filled with the new shade.

To edit a pattern one pixel at a time, choose a colour from the palette and point the mouse at the larger of the two windows. Clicking the button will turn individual pixels to the new colour.

You can use this technique to widen the apparent range of colours available on the computer. If you'd like a reddish-orange, for example, you can mix one by combining red, orange and yellow pixels in a regular pattern.

When you're satisfied, click on OK to put the new pattern into the pattern box; alternatively click on Cancel to scrap your efforts.

You can make a hard copy of any Gempaint picture with the OUTPUT program. This is chosen from the Gempaint File Menu, so pop this down and click on the To Output... option. When the OUTPUT list appears on screen, use the Add Names option from the Edit Menu to insert the names of the individual files which you want to output.

To do this, you'll need to change the Directory line of the Item Selector to A\IMAGES\*.GEM (or to B\IMAGES-\*.GEM if the Gempaint Disc is in drive B) and then select the picture files you want from those listed on the screen. To change the Directory line, take the mouse cursor up to it and click the left-hand button once, then press Escape to clear what is already displayed and type in the new directory information shown above. Figure III shows paintings being selected in this way.

When all the files you want to output have been added, select Start Output from the File Menu. You'll be asked whether you want to direct the output to the screen, the printer, a plotter or a camera. It's probably a good idea to view your work on the screen first, in case you've made a simple mistake like selecting the wrong files; when you're sure that everything is in order, you can begin outputting the paintings on the printer.

When using a plotter or a non-standard printer (one which isn't Epson-compatible), you'll need a special device driver. If this doesn't come with the printer, you'll have to ask your dealer to get one.

There's a lot more to Gempaint than we've been able to cover in these two articles. For instance we haven't looked at how the dotted rectangle icon (on the top row of the tools) can be used to move or copy parts of your paintings from one place to another, or can turn a part of a picture into a pattern.

At least half the fun of using a computer is in experimenting with it to find out just what you can and can't do with a particular program. So keep trying new ideas for creating pictures, and do drop us a line if you find something particularly startling or useful. ■

Filetypes – .GEM and .IMG files

Storing a Gem Paint picture requires two different files; one of these has a .GEM filetype, while the other is an .IMG file.

Both files are essential, so if you copy your paintings from one disc to another, be sure to copy both files.

When saving or loading files, use an .IMG filetype but when using the OUTPUT program, use the .GEM filetype. This isn't too hard to remember, because you'll always be prompted with the appropriate letters.

About colour printers

Depending on your hardware, ther are several different ways of making hard copy of your work. Most people have access to a dot matrix printer, and quite acceptable work can be done with this, although it will have to represent the colours of your work in shades of grey.

To print a full-colour version a colour printer is needed. Some of these have multicolour ribbons, while others use ink jets. The main advantage of ink jet printers is that they're quieter than most other kinds. With either kind, you can produce transparencies for overhead projectors as well as more conventional printed work.

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MAKING SENSE OF MS

LAST month we saw how MSdos was the ghost in our machine that allows us to control what's going on without having to worry about the nasty details of the happenings at hardware level. It acts as a sort of ghostly go-between for our applications software and the inner workings of the micro.

Depending on your point of view, it either protects the user from the hardware or the hardware from the user. More formally, it's known as an operating system and provides a uniform way of dealing with:

- input – say from a keyboard or modem
- output – perhaps to the screen or a printer
- file handling – such as keeping track of and running your programs and data files.

Your PC1512 is paralysed without an operating system, hence its plea for you to insert a system disc when you try to boot up – get your micro running from scratch – without one.

That's only for we impoverished floppy disc users. Once more affluent hard disc owners have installed – set up – their system it's there permanently on switch-on.

Whatever version of the PC1512 you eventually end up at the > prompt which is MSdos's way of telling you it's awaiting your orders.

Now your PC1512 is a very drive-orientated machine as are its operating systems – without some kind of disc there to get the operating system from, your machine is useless. In fact your PC can, and often does have several drives which it distinguishes with letters of the alphabet, followed by a colon, so you can have A: or B: and so on. But to stop any confusion as to which drive you're talking about, one of them has to be 'it'.

More correctly we say that at any one time one of our drives is the default drive: Unless our command to MSdos specifically says otherwise, it assumes the default drive is the one we're talking about. On an all-floppy system the default drive is drive A whereas with a hard or fixed disc system it's drive C, the hard disc itself, drive A referring to its single floppy drive. On a floppy system drive C is the ram disc.

(In case you're wondering, a hard disc contains at least 25 times the information a floppy does, accesses it faster and is permanently fixed in place. A ram disc is a piece of memory set aside that looks to the operating system as if it were a floppy disc.)

You can tell which the default drive is because its letter appears before the > prompt. So when you boot up MSdos on an all- floppy system you'll see:

```
A>
```

whereas on a hard drive you'll see:

```
C>
```

Of course, there's no point in having extra drives unless you can get to them, so we need a way of changing the default drive. Suppose you're already defaulted to drive A, then to change it to drive C simply type:

```
C:
```

and send this command to MSdos by pressing the key with the bent arrow – which from now on I'll refer to as the Return or Enter key (and to heck with that redundant one on the numeric keypad already marked Enter). The sequence that should appear on your screen is:

```
A>C:

C>
```

Now the chevron prompt has the letter C in front of it, showing that drive C is now default. If you now ask for a directory of the disc with:

```
dir
```

you'll see that it's the contents of drive C that are displayed. To return to drive A enter:

```
A:
```

Facts on files

FILES are computer entities that are rather hard to define. In practice they're just a collection of numbers that the computer interprets in various ways. For instance, one file might be an "applications program" such as a word processor while another might be a set of records or the letter you wrote on your word processor. These inert files of information are often referred to as data files to distinguish them from the more active programs.

The difference is that programs can be activated or "run" whereas the data files have things done to them by programs and contain no life of their own. Both are known collectively as files. I always think the relationship between program and data files is like that between a locomotive and its carriages: one provides the energy that gets the rest moving.

MSdos marks out the programs that it can run with file extensions of COM, EXE and (in a slightly different way) BAT.

Wildcards

IF you're as much a typist as I am, odds on that instead of entering:

```
dir A:
```

you'll have entered:

```
dir A
```

which will give you the message:

```
File not found
```

unless your default drive just happened to have a file titled A on it, when you'd get its full details. Still, it takes us into the interesting area of wildcards.

Put your copy of system disc one – the MSdos disc – into your default drive and try the commands I'm going to suggest. The results should be similar to mine unless your disc is radically different.

Enter:

```
dir A*
```

I found the following files appearing on my screen:

ANSI.SYS
AUTOEXEC.BAT
ANSI.COM
APPEND.COM
ASSIGN.COM
ATTRIB.EXE

*In other words, all the files beginning with A were listed. This is because * acts as a "wildcard" meaning "and consisting of any other letters to the end". So:*

```
dir A*
```

means "give me the directory details of all files beginning with A and consisting of any other letters to the end". Following this reasoning:

```
dir d*
```

will give you all the files beginning with D. (Notice that MSdos ignores the case of the letters typed in – everything is connverted to upper case.)

Of course, as we saw last month, filenames are divided into two parts: a filename up to eight letters long followed by a dot and a possible three letter suffix. If we mix wildcards and the dot the word "end" means "end of

sdos

The second part of John Porter's series which covers the fundamentals of the PC's operating system

that part of the filename''.

So:

```
dir *.com
```

will accept (or ''match'') anything for the first part of the filename, but demands a suffix of COM. So you'll get a list of all the COM files (as they're known).

On the other hand:

```
dir A*.COM
```

will give you a list of all the COM files beginning with A. The asterisk accepts any combination of letters after the A up to the dot.

Following this logic:

```
dir *.*
```

will give you the directory of all the files on the disc, since all filenames and suffixes are matched.

Incidentally, you may try to shortcut and use:

```
dir *m
```

*to get all the COM files on a disc. However that * really means any combination of letters up to the end and the M doesn't get a look in. Try it and you'll see what I mean.*

You can also specify a single letter wildcard with **?**. This is like the blank tile in Scrabble and matches any single letter. So:

```
dir ?i*.*
```

will give you all the files on the disc whose second letter is I:

```
DISKCOMP.EXE
DISKCOPY.EXE
FIND.EXE
```

Admittedly this was rather an artifical example, but you'll find plenty of scope for using ***?*** *in practice.*

Finally, can you guess what:

```
dir ????????.???
```

will give you? Try it and see.

```
A> dir C:

 Volume in drive C is MS-RAMDRIVE

 Directory of C:\


FORMAT   EXE     10957  14-07-86  12:15


        1 File(s)    189184 bytes free



A>
```

Figure I: Taking the directory of a none default drive

You'll find that the A> reappears and that:

```
dir
```

now shows the directory of drive A.

Notice that I didn't bother to show the C> prompt when I asked you to type in **A:**. From now on unless I specifically say otherwise I'm going to omit prompts and show only what I want you to type in. And remember, MSdos won't even receive your command until you send it by pressing the bent arrow (Enter) key.

Sometimes we want to know what's in a particular drive without wanting to change to that drive as default. We can do this by specifying the drive we want the directory of as a parameter attached to the **dir** command. This is a rather grandiose way of saying that we follow the **dir** with a space and then the drive letter we're interested in plus an accompanying colon.

Assuming we're ''in drive A'' – that is, drive A is default – we can display the contents of drive C with the command:

```
dir C:
```

The result of doing this with a ramdrive containing the single file FORMAT.EXE is shown in Figure I. Notice how the default drive remains A, though the directory of C is given. That colon after the C is important, otherwise MSdos won't realise you're talking about a drive.

Incidentally, if you try reading a drive with no disc in you'll get a message like:

```
Not ready error reading drive B

Abort, Retry, Ignore?
```

Either key A for Abort or insert a disc and press R for Retry.

You can give **dir** other parameters as well as a drive specification. If you're on a floppy system, put your copy of Disc One, the MSdos system disc, into your default drive. If you're on a hard disc, what's already on drive C will probably suffice, though you could be swish and use our techniques to change your default drive to your floppy, A, and insert your MSdos copy there.

Whichever you choose, you can be pretty sure of one thing – if you enter:

```
dir
```

there will be so many files on your disc that there won't be room for all of them. The newcomers will ''scroll'' the first few files off the top of the screen.

Now there is a way round this. If you press Control+S (that is, the Ctrl and S keys together) the listing of files will Stop, resuming when you once more press Con-

Turn to Page 50 ▶

Single disc schizophrenia

SINGLE floppy disc systems (and remember hard discs have a single floppy) can be used in a schizophrenic mode – where they refer to the same physical drive with two different labels. In other words, if you are already defaulted to drive A, say, and enter:

```
dir b:
```

the micro will realise that you intend to use ''another disc drive'' and, considering your one drive as now having the label B, will prompt you:

```
Insert diskette for drive B: and
press any key when ready
```

The disc you insert is now considered to be in drive B. If you then ask for:

```
dir A:
```

you will be prompted for the disc for drive A and so on.

You can even change to (or ''log on to'') this drive B with:

```
B:
```

and the micro will maintain the fiction that you've got a second drive: Whenever you refer to drive A while logged on to B it will prompt you to put the disc into drive A.

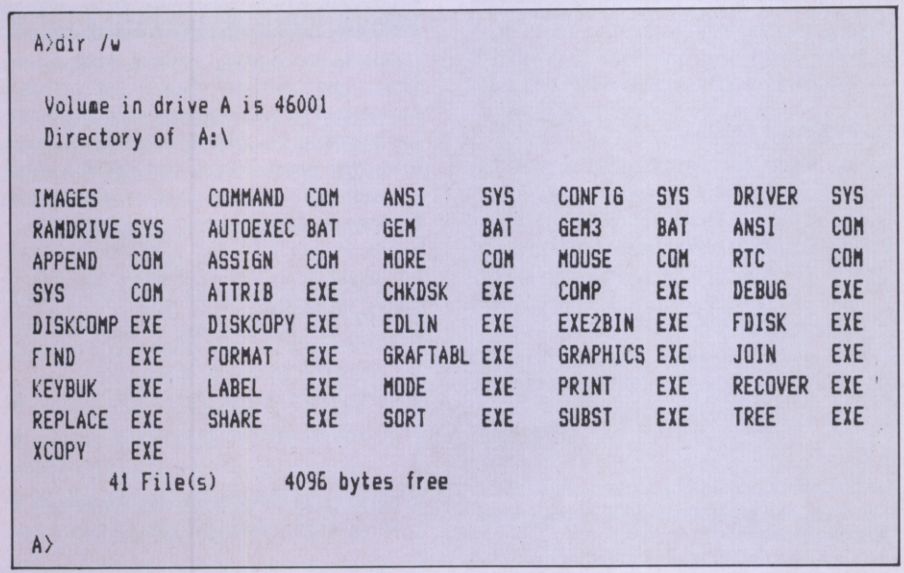
All this may not seem a lot of use, but in fact it's very handy indeed. One of the MSdos commands we've already met is DISKCOPY which makes an exact replica of discs. Of course, if you've only got one drive copying the disc that's in it onto another disc may seem to present problems: Where do you put the disc you're copying?

The answer is to use:

```
DISKCOPY A: B:
```

Your micro now goes schizoid and, considering you to have two drives, will prompt you when you need to change the disc in your one drive so that what's in ''drive A'' is copied to ''drive B''.

◀ From Page 49



```
A>dir /w

 Volume in drive A is 46001
 Directory of  A:\

IMAGES           COMMAND  COM    ANSI     SYS    CONFIG   SYS    DRIVER   SYS
RAMDRIVE SYS     AUTOEXEC BAT    GEM      BAT    GEM3     BAT    ANSI     COM
APPEND   COM     ASSIGN   COM    MORE     COM    MOUSE    COM    RTC      COM
SYS      COM     ATTRIB   EXE    CHKDSK   EXE    COMP     EXE    DEBUG    EXE
DISKCOMP EXE     DISKCOPY EXE    EDLIN    EXE    EXE2BIN  EXE    FDISK    EXE
FIND     EXE     FORMAT   EXE    GRAFTABL EXE    GRAPHICS EXE    JOIN     EXE
KEYBUK   EXE     LABEL    EXE    MODE     EXE    PRINT    EXE    RECOVER  EXE
REPLACE  EXE     SHARE    EXE    SORT     EXE    SUBST    EXE    TREE     EXE
XCOPY    EXE
       41 File(s)      4096 bytes free

A>
```

Figure II: DIR /W on the MSdos system disc

trol+S (for Start this time). Of course you have to be quick on the keyboard to get it to stop at the spot you want . . .

One way to break off the listing of a directory altogether and return to the prompt is to press Control+C for Cwit. (All right, I admit it's zany, but try forgetting it now.)

There is an easier way, though. We simply add **/w** to the end of **dir** to give us the files **w**idthways. Try:

```
dir /w
```

and if you've got Disc One in your default drive you should see something similar to Figure II. Notice that when we do things this way, we lose the information as to file length and so on. If we wanted to see all this extra information and still stop it scrolling off the screen before reading we could add **/p** which causes the listing to **p**ause and wait for a keypress before losing details off the screen.

Try:

```
dir /w
```

and you'll see the effect.

And, of course, you can combine the two as in:

```
dir /w/p
```

Creatures like **/w** and **/p** are called switches, since they switch effects on and off. We'll be meeting more of them.

But that's in the future. To sign off this time I'll leave you with a new MSdos command:

```
cls
```

Now I wonder what that does? If you haven't the nerve to try it, you'll find the answer next month. And instead of just looking at the files on a disc, we'll be seeing how to put them there. ■

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PCA7

JUDGING by the amount of mail I have received since my last article was published, there are a lot of budding adventurers with PC1512s.

Most of the letters I have received have asked for a more detailed explanation of the mechanics of play, and help in getting started. So here's an in-depth explanation of what adventures are, typical uses for common objects found in them, plus some useful commands and what they do.

I tend to compare them with detective stories: The hero is cast in a role that sees him starting with little or no idea how he is to arrive at a solution and ends with him solving the case. Along the way he finds red herrings designed to throw him off the scent as well as valuable clues.

Objects he finds can sometimes help him make progress. For instance, a key that opens a safe to reveal a will that gives one of the suspects a motive ... and such like.

An adventure follows much the same format, except that you can't turn to the last page to find out how the story ends. Instead, you play the detective's role, searching for clues and objects to help you to solve the game.

Since most adventure writers expect you to get your money's worth from the game, you will find that those clues and objects aren't that easy to find and use.

The following example is typical of the kind of problem you can face in an adventure:

You need to find a lamp so that you can explore underground. To get the lamp you must get past a djinn. He won't let you pass until you get and open a bag of wind which has to be collected from an orc's tower.

To get the bag you have to get a table and climb on to it to reach an orchid. The orchid has to be given to a unicorn which then runs off, leading you to a medallion and some pipes. You then have to map a forest, climb a tree and get a silver ball.

Your next step is to head in to a desert. Great care is needed here as the desert is inhabited by a sandworm. Much as in the novel Dune, the sandworm is attracted by noise. This means that you have to stop every so often and remain motionless. However, you need the sandworm to rid you of your next obstacle, a sphinx. So you have to attract the sandworm but avoid being killed while you are doing it

Having rid yourself of the sphinx, the way is clear to enter a temple. Here you must do a trade with the high priestess to get a ruby before heading up in to the mountains. The giant you meet will run away when he sees that you have a sling and ball, so you must find and release the snowman – assuming you have remembered to bring the keys with you.

You must now go with him to a large group of rocks and push. This will scare away the orcs that live in the tower and you can enter and start searching for the bag.

You will now meet the final obstacle to your getting the bag, a beastie! Throwing the ruby at it will leave the way clear for you to finally get the bag.

Complicated and incredible as this plot may seem, such a scenario does exist. In fact it's taken from the second in the Jewels of Darkness trilogy, Adventure Quest, and is typical of all the Level 9 range. Small wonder Level 9 is one of the most popular adventure software houses.

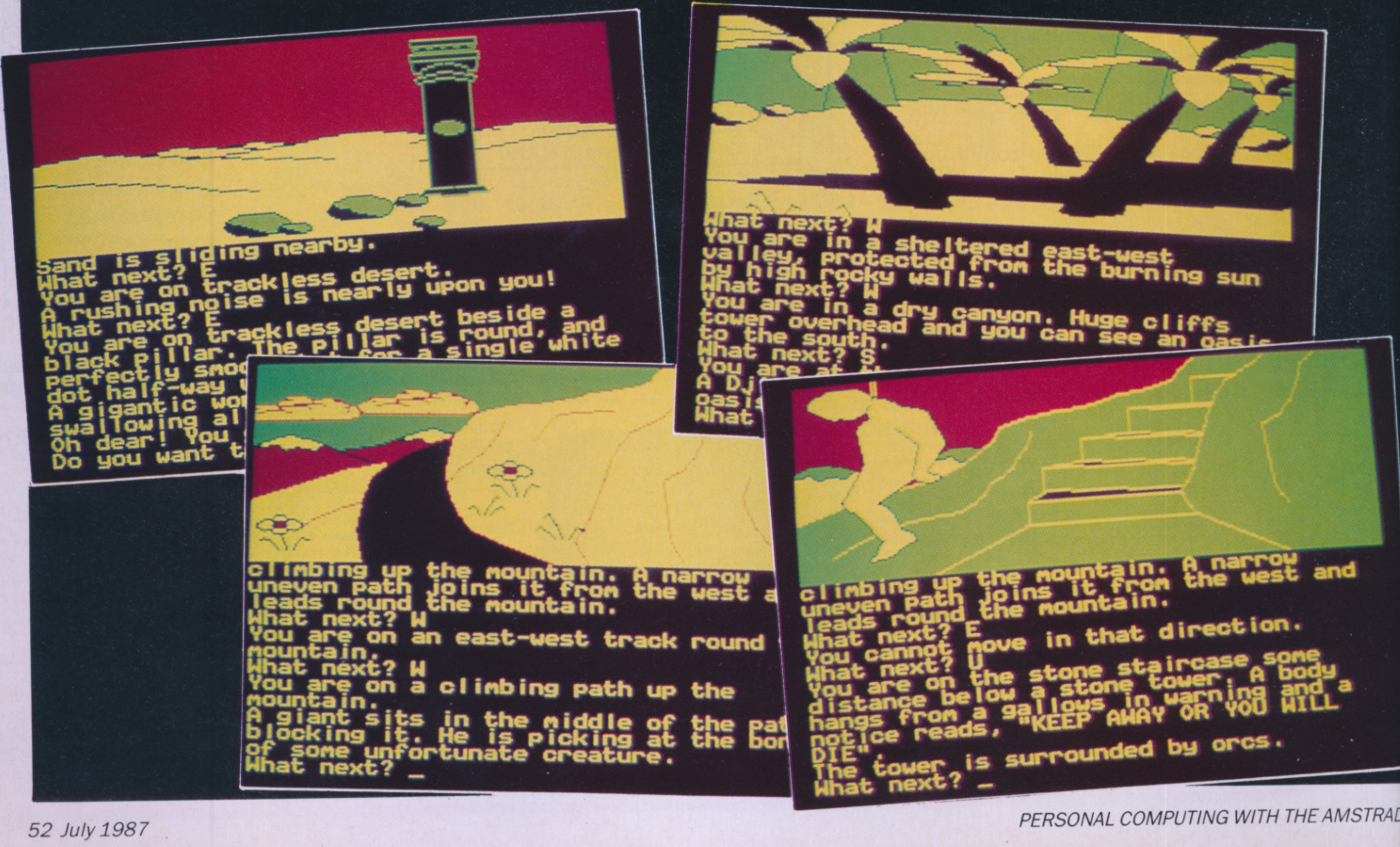
As you can see, the problems you can meet while adventuring are varied and complex. Additional difficulties can be caused by the game's setting.

It might be in the far future where you have to use an improbability drive to visit an even more improbable planet. It could be on Earth, where your task is to prevent an atom bomb from causing widespread destruction. Alternatively, as in the example above, it might be set in mythical lands where magic reigns supreme.

Whatever the scenario, adventures all have one thing in common: They require you to think yourself into the role that the writer has cast for you. Failure to do this invariably means that you will be unable to finish the game.

Now that you confident about the purpose of the adventure, how do you actually go about solving it?

All writers give the player some idea of what his purpose in the game is and so the first objective should be to explore as wide an area as possible. Not all locations, or rooms as they are often called, will be open for explor-



```
Sand is sliding nearby.
What next? E
You are on trackless desert.
A rushing noise is nearly upon you!
What next? E
You are on trackless desert beside a
black pillar. The pillar is round, and
perfectly smoo                  for a single white
dot half-way u
A gigantic wor
swallowing al
Oh dear! You
Do you want t
```

```
What next? W
You are in a sheltered east-west
valley, protected from the burning sun
by high rocky walls.
What next? W
You are in a dry canyon. Huge cliffs
tower overhead and you can see an oasis
to the south.
What next? S
You are at t
A Dj
oasis
What
```

```
climbing up the mountain. A narrow
uneven path joins it from the west a
leads round the mountain.
What next? W
You are on an east-west track round
mountain.
What next? W
You are on a climbing path up the
mountain.
A giant sits in the middle of the pat
blocking it. He is picking at the bon
of some unfortunate creature.
What next? _
```

```
climbing up the mountain. A narrow
uneven path joins it from the west and
leads round the mountain.
What next? E
You cannot move in that direction.
What next? U
You are on the stone staircase some
distance below a stone tower. A body
hangs from a gallows in warning and a
notice reads, "KEEP AWAY OR YOU WILL
DIE".
The tower is surrounded by orcs.
What next? _
```

Heroics and the red herrings

Paul Gardiner exploring the realm of adventures

ation. Many will be inaccessible until certain problems have been solved. It is usual for some kind of object to be used in solving a problem so, again using examples from Level 9's games, we'll look at some typical objects and their uses. The common commands for manipulating these objects together with useful words that make life a bit easier can be found in the accompanying panel.

Two types of objects are found in adventures, those you do things with and those you do things to. Most common is a lamp or other source of illumination.

Quite often it is an old oil lamp or a torch. In Dungeon Adventure a piece of driftwood must be burnt to provide the light needed to explore an underground cave complex.

If it is an oil lamp, you may need first to find some oil and then something to light it with. If it is a torch you may need batteries, as in Colossal Adventure – though in this game, you don't realise you need batteries until you find the vending machine that dispenses them.

Money also crops up fairly regularly. In the case of the vending machine, you have to insert coins to get the batteries. In Dungeon Adventure coins are one of the treasures that have to be collected and in Return to Eden, one of the Silicon Dreams trilogy, you are in the far future and have a credit card for buying vital equipment.

Other uses may include paying for passage across a river or information or even for buying a train ticket.

In fantasy adventures rings, wands or other magical objects appear. In Colossal Adventure, a wand is waved to create a bridge over a previously impassable chasm. Eating mushrooms in Dungeon Adventure will make you grow to giant or ant size and in Adventure Quest a staff can be used to provide a perpetual food supply.

Keys are pretty common and are usually used to open doors or chests. Another object you will often come across is a container, say a bottle. You may need to use it to water a plant or cross a desert without dying of thirst. It may even be big enough to hold your possessions, thus enabling you to carry more.

A good example of this occurs in Dungeon Adventure. You begin the game close to a packing case. Like Dr. Who's Tardis, it is bigger inside than it looks and will hold a multitude of objects – you can even go inside it!

Other objects that make regular appearances include ropes, food – often for others to eat – ladders, weapons and musical instruments. The uses for these objects vary considerably but they are generally used for their obvious purposes.

It isn't possible to mention every object you are likely to come across when adventuring, but I hope I have covered the more common ones. If you come across any other problems in your adventuring, please feel free to write – though an sae would be appreciated if you want a reply. ■

Here are the most common commands that appear in adventures, and examples of their use. Where abbreviations are normal I have put them in brackets.

GET <object>	Used to pick up an object, for example, GET KEY.
DROP <object>	Drop an object.
EXAMINE <object> *(EXAM)*	Used to determine if there is anything special about an object or location. Quite often the object will need to have been picked up first as in the following dialogue: EXAMINE BED "You see a pillow". EXAMINE PILLOW "You haven't got it" GET PILLOW EXAMINE PILLOW "You see a piece of paper sticking out that says 'Read PC Amstrad regularly'.
INVENTORY (INVE, INV, I)	Used to list the objects carried.
LOOK	Displays the room description.
HELP	What it says. Some games have a Help function built in that gives clues in strategic places.
SCORE	Useful for finding out how well or badly you are doing.
N, S, W, E.	Abbreviations for the cardinal points of the compass. Others include UP (U), DOWN (D), IN, OUT, NE, NW, SE and SW.

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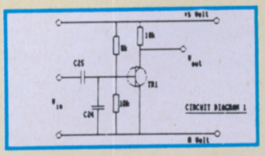

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PCA 7

A LOT OF PROGRAM FOR THE MONEY

Jo Stork reviews a new accounting package, and gets a pleasant surprise

CALL me an old cynic if you must, but the moment a program is called Superwhatsit, Mega-howsyourfather, Ultima-doddle and the like; then I become highly suspicious. Such products are usually no better than average. Sometimes they are positively awful.

The few notable exceptions such as SuperCalc will need to be joined by many more excellent products before I change this view.

Also I'm always wary of program conversions. This is because some systems such as databases can develop illogical key operations when features from the original are superimposed upon different hardware. Others, when converted from one market to another – and accounting packages are notorious in this respect – tend to be a poor fit in their new sector.

I therefore leave to your imagination how low a level of expectation I had as I opened an accounting package originating in the USA – where the practices are somewhat different – with the seemingly presumptious title Dac-easy.

Despite my prejudices, it took no more than five minutes for me to discover that this is an extremely good product, which can show many systems costing three times as much what good fundamental design is all about. Its transformation to the British market has been first class – so much so that were it not for the Dallas address in the documentation and on the copyright screen, I would never have guessed it had crossed the pond. This high opinion was maintained through what eventually had to become many hours of testing.

So what is it that makes some programs better than others? Basically just two things:

- It offers just the right amount of features for the market sector that it is directed at.
- Attention to detail, so that all operations are consistent, logical and have easily understandable purpose.

DAC Software Inc has made the right decisions in both these areas.

Dac-easy can just about be shoehorned on to a single floppy drive PC, although you will be limited to very small file sizes and be greatly restricted in the number of transactions that can be held. It is excellently suited to twin floppy systems, although the time needed to set up the files, (which is utterly justifiable as I will explain later), could come as very rude shock to smaller organisations.

- ▶ *Product: Dac-easy accounting*
- ▶ *Prices: Dac-easy accounting £49.95*
  Dac-easy tutorial £19.95
  Online Support [p.a.] £40
- ▶ *Supplier: Technology Systems, Hallams Court, Blackheath, Guildford, Surrey GU4 8QZ.*
- ▶ *Tel: 0483 898140*

Even entrepreneurs with a fixed disc will rarely need more features. In other words the software's creators have the sizing – that is the number of features offered – just about right for most PC users.

One of the first things I examined was the manual. I have seen systems of this size try to make do with 50-60 pages. Dac-easy has a book of 240 closely-typed pages. None of them pertains to accounting. Every single one describes the system. Even if you know about accounting or employ a professional bookkeeper this is a huge amount of information to wade through, understand and remember before starting to use the system.

I therefore strongly urge you spending the extra £19.95 for the tutorial disc. This is not a criticism of the manual because it is well laid out; but by the time every single one of the 40+ screens, 20+ printouts, 15+ updates, 12 files and every single input field is illustrated and described at considerable length the result must come to at least a dull five hour read for the novice and not very much less for the experienced user.

The tutorial disc explains every single operation, using a neat system of overlay screens. A couple of hours spent here afterwards using the manual merely as a reference guide should be enough for most users.

If you have a fixed disc you can always store these lessons in the same directory as the system itself and refer to them whenever necessary. Sadly, and probably because the system can be run on a single drive, there is no online help.

If you do need to use the tutorial during normal working, (and I did), then you must drop out of the package and call it up as a separate Dos command. When after a minute or so you have completed the revision, you enter the command EASY and resume work. This is far from ideal, but is an adequate compromise.

The attention to detail is carried over into the programs themselves. The first task is setting up the files. This is basically very simple, but I warn potential users that

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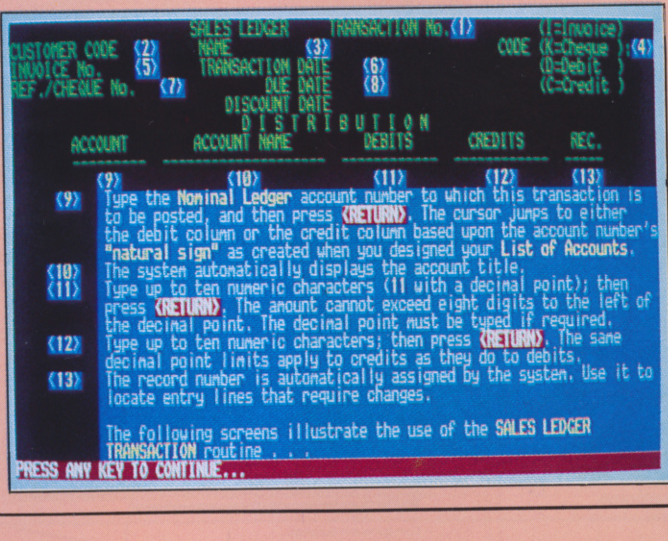

```
                   SALES LEDGER     TRANSACTION No.(1)          (I=Invoice)
CUSTOMER CODE (2)     NAME              (3)              CODE (K=Cheque ):(4)
INVOICE No.   (5)     TRANSACTION DATE     (6)                (D=Debit  )
REF./CHEQUE No.   (7)          DUE DATE     (8)                (C=Credit )
                          DISCOUNT DATE
                          D I S T R I B U T I O N
     ACCOUNT        ACCOUNT NAME          DEBITS        CREDITS      REC.
     -------      ----------------      ----------    ----------    ----
        (9)           (10)                  (11)          (12)        (13)
   (9)  Type the Nominal Ledger account number to which this transaction is
        to be posted, and then press <RETURN>. The cursor jumps to either
        the debit column or the credit column based upon the account number's
        "natural sign" as created when you designed your List of Accounts.
  (10)  The system automatically displays the account title.
  (11)  Type up to ten numeric characters (11 with a decimal point); then
        press <RETURN>. The amount cannot exceed eight digits to the left of
        the decimal point. The decimal point must be typed if required.
  (12)  Type up to ten numeric characters; then press <RETURN>. The same
        decimal point limits apply to credits as they do to debits.
  (13)  The record number is automatically assigned by the system. Use it to
        locate entry lines that require changes.

        The following screens illustrate the use of the SALES LEDGER
        TRANSACTION routine . . .
PRESS ANY KEY TO CONTINUE...
```

Figure 1: A typical tutorial screen

SOME COMPUTER USERS HAVE A LOT OF BOTTLE....

With acknowledgement to James Robertson & Sons Ltd.

. . . not to mention toast and marmalade! As you may have found out, time-sharing the household furniture is not the ideal way to run your PC, but on the other hand you might feel that a full-size workstation would look out of place in your home. A neat and simple solution is the Elliot James Data Trolley – a compact, self assembly PC station offering space without size and all these features:

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Amount £ .... Signature ....
Name ....
Address ....
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....

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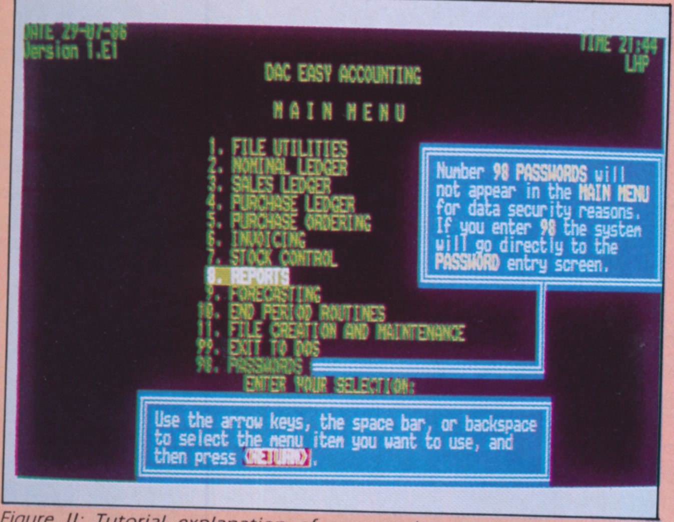


```
DATE 29-07-86                                   TIME 21:44
Version 1.E1                                           LHP
                    DAC EASY ACCOUNTING

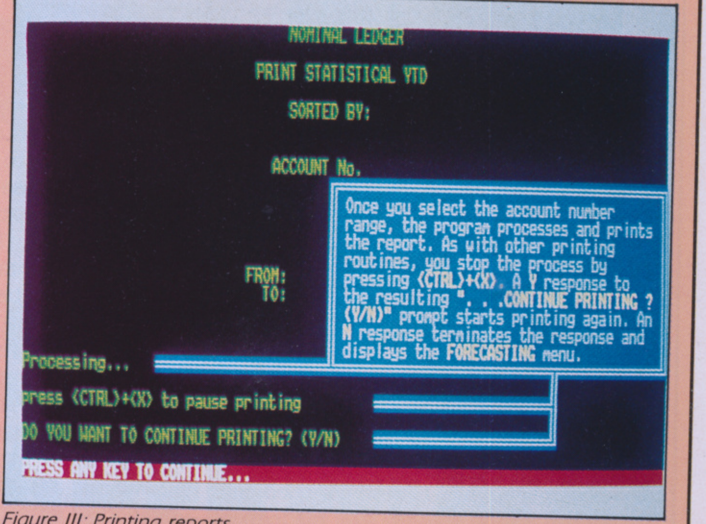
                       MAIN MENU

                 1. FILE UTILITIES
                 2. NOMINAL LEDGER
                 3. SALES LEDGER
                 4. PURCHASE LEDGER
                 5. PURCHASE ORDERING
                 6. INVOICING
                 7. STOCK CONTROL
                 8. REPORTS
                 9. FORECASTING
                10. END PERIOD ROUTINES
                11. FILE CREATION AND MAINTENANCE
                99. EXIT TO DOS
                98. PASSWORDS
                   ENTER YOUR SELECTION:

Number 98 PASSWORDS will
not appear in the MAIN MENU
for data security reasons.
If you enter 98 the system
will go directly to the
PASSWORD entry screen.

Use the arrow keys, the space bar, or backspace
to select the menu item you want to use, and
then press <RETURN>.
```

Figure II: Tutorial explanation of password protect



```
                    NOMINAL LEDGER

                 PRINT STATISTICAL YTD

                      SORTED BY:


                     ACCOUNT No.

Once you select the account number
range, the program processes and prints
the report. As with other printing
routines, you stop the process by
pressing <CTRL>+<X>. A Y response to
the resulting ". . .CONTINUE PRINTING ?
(Y/N)" prompt starts printing again. An
N response terminates the response and
displays the FORECASTING menu.

                   FROM:
                     TO:
Processing...

press <CTRL>+<X> to pause printing

DO YOU WANT TO CONTINUE PRINTING? (Y/N)

PRESS ANY KEY TO CONTINUE...
```

Figure III: Printing reports

it must not be skimped. Do not let the price of only £49.95 fool you. This is not a simple book-keeping system but a sophisticated accounting package with a very high level of integration between the Nominal, Sales, Invoicing, Purchasing, Stock and Forecasting modules.

Consequently if you do not get all the linkages between the transactions, customers, suppliers, deliveries and goods correctly organised from the start, the best that you can hope for is that the various accounts will not be correctly updated while the worst is that the whole system will fall over.

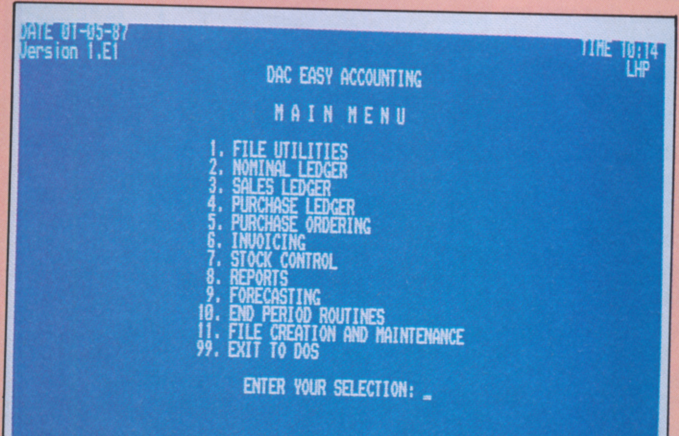
Dac-easy's integration is based upon a nominal ledger organised into a five deep hierarchy or tree structure of tightly interlaced accounts, of which one typical tree could be:

ACCOUNT NO.	ACCOUNT NAME	LEVEL
1	Assets Net	1
14	Creditors	2
144	Taxes Payable	3
1441	VAT Control	4
14412	VAT Output	5

Furthermore, each of these can be either a General or a Detail account. The latter can accept values directly from a transaction or posting whereas the former can only total other accounts in the hierarchy.

I have often said that 20-30 accounts is probably enough for most small organisations, otherwise some of them will only have a couple of pounds in them at year end. It is very tempting to use this ability to organise the accounts to create an over-elaborate structure. Dac-easy can make hundreds of such accounts available, because this nominal file set-up procedure creates all the linkages between the accounts, thereby making every update automatic.

This is vital in any accounting package since there is then no need to try and remember which cash item goes into which account. Consequently, you can chop the accounts as fine as is practical, (perhaps 40 - 50), hence giving you very detailed information on each aspect of the company. Considering the good range of predictive functions, this is particularly useful in assessing which part of the business may go over budget or alternatively fail to meet a target - in time to do something about it.



```
DATE 01-05-87                                   TIME 10:14
Version 1.E1                                           LHP
                    DAC EASY ACCOUNTING

                       MAIN MENU

                 1. FILE UTILITIES
                 2. NOMINAL LEDGER
                 3. SALES LEDGER
                 4. PURCHASE LEDGER
                 5. PURCHASE ORDERING
                 6. INVOICING
                 7. STOCK CONTROL
                 8. REPORTS
                 9. FORECASTING
                10. END PERIOD ROUTINES
                11. FILE CREATION AND MAINTENANCE
                99. EXIT TO DOS

                  ENTER YOUR SELECTION: _
```

Figure IV: Dac-easy main menu

If in doubt as to how to organise this tree structure, you can always copy the one in the manual, although because this has about 100 accounts in it, it is far more sophisticated than the majority of customers are likely to need. Even those who genuinely feel they need this many will probably believe that an account for Insurance Fixtures and Fittings is hardly required.

Once the nominal accounts are set up, you can commence the chore of creating all the customer, supplier, stock and report records. Again it is simple enough, but with an average of 10 entry fields to be input into each record plus the hunting down of balances, code numbers and the like from the system presently used there is no denying it will require several hours.

This is not to decry Dac-easy which is no worse than any other accounting package in this respect. It is a sad fact of commercial life that before a sensible balance sheet can be produced, even systems far simpler than this one need a lot of data to chew on.

In case I have put any potential users off the whole idea by explaining this area in such detail, I should stress that Dac-easy makes all this data entry very easy because the prompts are so logical. When in doubt, the manual has a good index, as well as a detailed contents to lead you to where the screen you are working on is explained.

My only quibbles about the data entry are very minor ones:

- There is no way to go back up a screen if you spot an error after you have pressed the carriage return and passed to the next field. Unfortunately you are forced to carry on, complete the record with its error and then call it back for amendment. Since all calculations are reworked each time it is processed it is no great hassle.

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Dac Easy Tutor
Dac Easy

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● Only an upper case Y or N is accepted for Yes/No. Until I got used to the system, the warning buzzer made me think I was playing a Moog Synthesiser. All this orchestration was just because I kept using lower case. Even after several hours working the package my PC still frequently warbled at me.

From unwrapping Dac-easy's packaging to commencing the daily transaction inputs will take 15 - 30 hours depending on your experience and the size of the organisation. This is no worse than any other system of this sophistication will demand. Only those who run a service rather than a typical trading organisation may have problems.

Dac-easy's manual does explain how to tailor the system to the service sector, but I felt this was a case of trying to widen the market appeal rather than due to particular suitability. (This may well be a case were a disc containing the required file structures could be put to good use.)

However, every hour spent prior to the daily grind of keeping the books up to date, will be amply repaid many times over. The reason is that all the cash transaction, stock movement, monthly and annual report screens are so slick and informative as a direct result of this preparation.

Long before you launch the first month end report you will have forgotten all the early labour and be delighted at how simple and logical everything has now become. User-friendliness is a much overworked term, as well as being a highly subjective area of review. Nevertheless, I believe DAC has got it about right. Whenever I made a choice from the well structured menus, followed it by the data entry, input the report selection criteria and finally backed up the files, I felt completely at ease.

I could give many examples of the package's aspects which pleased me. The following will have to suffice, if this review is not to become longer than the manual:

● Even though the tutorials are rather garish, the screen colours can be whatever you have set up as your PC standard.

● An operation on one screen is always identical on any other that needs it.

● The response times are extremely good.

Add just these few to all I have described already and you will understand why I quickly lost my preconceptions about imported products with hyperbolic names.

In conclusion I can only say that once the files have been created and loaded it should not be long before even the most rank novice will be hammering the keys as if to the manner born. New users should have no difficulty with this system although £40 for the telephone hot-line support would be money well spent, even though it seems high by comparison to the other charges. Accounting does not come much easier – or much cheaper. ■

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GET UP AND GO!

John Hughes on the delights of pop-up programs

IF you've been intrigued by the advertisements for Memory resident or "pop-up" programs like Sidekick and Smartkey, but haven't known what they're all about, this article should answer your questions in general, while looking at Sidekick in particular.

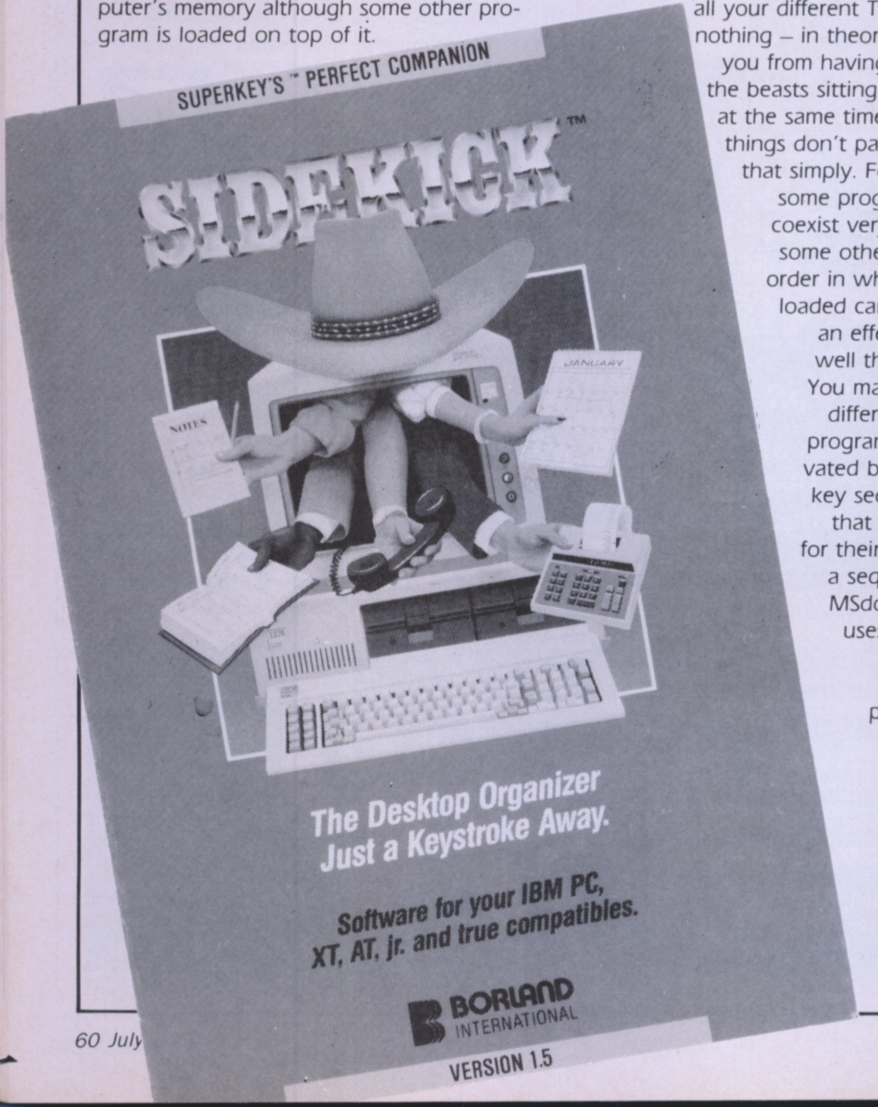
Essentially, memory-resident programs are ones which stay in your computer while another program is running. With ordinary 8 bit home computers this tends not to be possible, because when you exit from one program and run another, the first one is wiped out of the computer's memory.

However, MSdos, the operating system supplied with your PC1512, has a special function called Terminate and Stay Resident (TSR) which allows a program to be loaded and then to remain in the computer's memory although some other program is loaded on top of it.

The first program will just sit there doing nothing until something happens to wake it up. Usually this means that the program monitors the keyboard interrupts – as the computer's automatic scanning of the keyboard is known – while it waits for you to press some particular key or combination of keys. The first program then pops up.

TSR programs, as professional programmers sometimes call them, aren't easy to write, and you would need to have a very thorough understanding of the way MSdos works before writing one from scratch. However, it probably won't be too long before amateur programmers will be able to buy reasonably-priced shells which will handle all the awkward bits and allow them to create their own pop-up programs.

Provided that you have enough ram for all your different TSRs, there's nothing – in theory – to stop you from having several of the beasts sitting in memory at the same time. In reality, things don't pan out quite that simply. For example, some programs don't coexist very well with some others, and the order in which they're loaded can also have an effect on how well they behave. You may find that different pop-up programs are activated by the same key sequences, or that they hijack for their own ends a sequence that MSdos normally uses for something else. A case in point is Iolo Davidson's excellent Pinch And Punch utility – featured on this month's PCA disc – which grabs graphic screens. Based on programs from our June issue, this is activated by pressing Shift+PrtSc, which is more commonly used for producing screen dumps on a printer.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Although TSRs require very clever programming, they aren't in the same league as true multi-tasking. Indeed, MSdos isn't really designed for work of that sort.

In multi-tasking, the computer is effectively carrying out several tasks simultaneously. Memory-resident programs, on the other hand, just sit around in ram doing nothing until they're activated. As soon as they start, they push whatever program was previously running (which might be an ordinary program or another pop-up) into the background, where it in turn stays in hibernation until the TSR is put away. True multi-tasking programs would continue to run in the background.

Pop-up programs can be as complicated as you like. For instance, you can have a memory-resident spreadsheet and a memory-resident word processor sitting in your computer at the same time, and swap from one to the other as you need. At the moment, however, most people use pop-ups as adjuncts to programs of the normal kind, though this may not remain true for very much longer.

The grandfather of successful memory-resident programs is Borland's Sidekick, a desk accessory. This is now available in a special Amstrad PC1512 version, and if you use your computer regularly, it can certainly make life a lot simpler for you.

Among the facilities which Sidekick offers are a table showing the Ascii values of every character in the IBM character set, a telephone dialler, a calendar, a notepad and a calculator which works in Hex and Binary as well as in base 10.

If the thought has struck you that some of these sound rather similar to the Gem Desktop accessories, you'd be right – up to a point. However, the Sidekick pop-ups are rather more sophisticated – the Gem calculator only works in Base 10, for example – and they don't swallow nearly as much memory. They pop up on the screen a good deal faster than the Gem equivalents, too.

Sidekick comes (unprotected) on a single disc, accompanied by a sensible manual.

Actually, the disc contains several different versions of the program, and which one you will use will depend on whether you have enough memory for the full version or will have to make do with one of the cut-down versions which offer only a limited selection of accessories.

Owners of machines that have less ram than the Amstrad might well find this useful, but PC1512 users shouldn't run into any problems with using the full program unless they want to accommodate several other TSRs at the same time.

If you're running Sidekick alongside other memory-resident programs, Borland warns you to load it last, though how important this is depends to some extent on what the other TSRs are.

Once Sidekick is safely in memory, you can load and run your ordinary programs in the normal way. They shouldn't behave differently in any way because Sidekick is present.

Occasionally you may find some older piece of software that doesn't take kindly to the presence of pop-up programs, but there are very few modern programs which run under MSdos and which aren't Sidekick-compatible – you can even use Sidekick with Gem provided that you are running Gem under MSdos rather than Dos Plus.

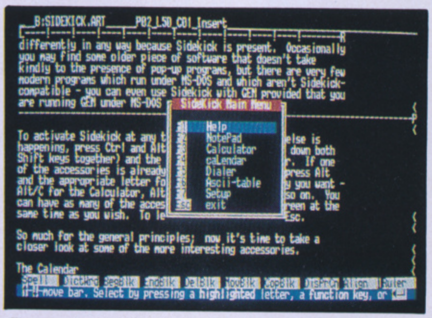
To activate Sidekick at any time, regardless of what else is happening, press Control and Alt simultaneously (or hold down both Shift keys together) and the Sidekick menu will appear. If one of the accessories is already on the screen, you can press Alt and the appropriate letter for whichever new accessory you want – Alt–C for the Calculator, Alt–N for the Notebook and so on. You can have as many of the accessories present on the screen at the same time as you wish. To leave an accessory, press Esc.

So much for the general principles; now it's time to take a closer look at some of the more interesting accessories.

The Calendar: The Sidekick calendar extends from the beginning of the present century to the end of the next. When it's first popped on to the screen it automatically shows the current day, courtesy of the system clock, but you can use the cursor keys to take it forward or back to any date; once a particular day has been selected, pressing Return will open an appointments diary for that day, and any information which you add to this will be saved on to disc.

- *Product: Sidekick*
- *Price: £80.44*
- *Supplier: Borland, 1 Great Cumberland Place, London W1H 7AL*
- *Tel: 01-258 3797*

- *Product: Sidekick*
- *Price: £29.95*
- *Supplier: Amsoft, Victoria House, PO Box 10, Sunderland SR1 3PY.*
- *Tel: 091-567 3395*



```
B:SIDEKICK.ART      P02 L50 C01 Insert
differently in any way because Sidekick is present.  Occasionally
you may find some older piece of software that doesn't take
kindly to the presence of pop-up programs, but there are very few
modern programs which run under MS-DOS and which aren't Sidekick-
compatible - you can even use Sidekick with GEM provided that you
are running GEM under MS-DOS

To activate Sidekick at any t                           else is
happening, press Ctrl and Alt                           down both
Shift keys together) and the                            r.  If one
of the accessories is already                           press Alt
and the appropriate letter fo                           y you want -
Alt/C for the Calculator, Alt                           so on.  You
can have as many of the acces                           reen at the
same time as you wish.  To le                           Esc.

So much for the general principles;  now it's time to take a
closer look at some of the more interesting accessories.

The Calendar
```

SideKick Main Menu
Help
NotePad
Calculator
caLendar
Dialer
Ascii-table
Setup
Esc exit
Spell DictWrd BegBlk EndBlk DelBlk MovBlk CopBlk DisPrCn Align Ruler
move bar. Select by pressing a highlighted letter, a function key, or

Figure I: The Sidekick main menu.

The calculator: When the calculator is called up, the NumLock key is automatically engaged, making it easier to enter calculations directly from the number pad. You can carry out operations in Binary by pressing B or in Hex by pressing H, and you can also paste any numbers from the calculator directly into an application program – handy if you need to work out a total and add it into a letter or report.

The Notepad: I find the notepad is the most useful of the Sidekick accessories, and I probably use it more than all the others together.

It can be used in several ways. At its simplest, it functions as an ordinary processor, offering all the usual facilities; you can define blocks, carry out searches, indent paragraphs and so on.

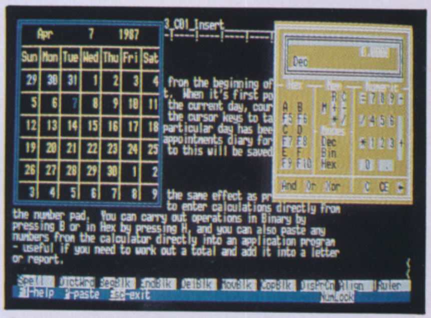
Most of the commands are the same as in standard WordStar, so if you're already familiar with that program you will find it very easy to use. Unlike WordStar – and most other word processors – you can also print directly from the notepad, without needing to save the file first.

But its most useful feature is that you can import all or part of any alphanumeric screen display into the notepad, or export data from it into some other program. This means that information of all sorts can be freely interchanged between all your different programs.

For example, you can copy the inside address from letters you write into the Notepad, and then use the printing facility to produce sticky address labels. Or you can run a spreadsheet or database, "lift" items off the screen, then leave the first program, start your favourite word processor, and "paste" the material into the new program.

At a stroke you can throw away all the little scraps of paper on which you used to scribble the information which had to be carried from one program to another.

I have to confess that pop-up programs appeal to me; perhaps I'm seduced by the very high quality of programming that has to be engaged in to produce one, or maybe it's just that they do a useful job so well. If you haven't explored Sidekick or one of the other pop-ups yet, do give them a try. ■



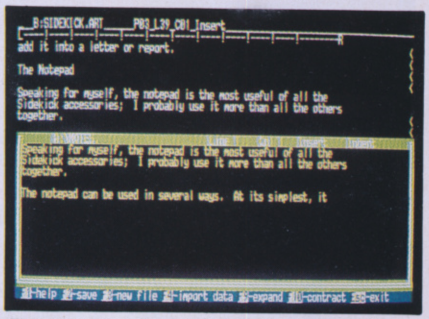
```
3 C01 Insert
 from the beginning of
t.  When it's first po
 the current day, cour
 the cursor keys to ta
particular day has bee
appointments diary for
 to this will be saved

 the same effect as pr
 to enter calculations directly from
the number pad.  You can carry out operations in Binary by
pressing B or in Hex by pressing H, and you can also paste any
numbers from the calculator directly into an application program
- useful if you need to work out a total and add it into a letter
or report.
```

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2
3	4	5	6	7	8	9

Apr 7 1987
Dec
Hex
Mem
Numeric
A B F5 F6 C D F7 F8 E F F9 F10
M R C + - * /
Modes
Dec
Bin
Hex
7 8 9 4 5 6 1 2 3 0 . = / * - +
And Or Xor
C CE
Spell DictWrd BegBlk EndBlk DelBlk MovBlk CopBlk DisPrCn Align Ruler
F1-help F2-paste Esc-exit
NumLock

Figure II: The Calendar and Calculator.



```
B:SIDEKICK.ART      P03 L39 C01 Insert
add it into a letter or report.

The Notepad

Speaking for myself, the notepad is the most useful of all the
Sidekick accessories;  I probably use it more than all the others
together.
```

```
A:NOTES.      Line 1   Col 1   Insert   Indent
Speaking for myself, the notepad is the most useful of all the
Sidekick accessories;  I probably use it more than all the others
together.

The notepad can be used in several ways.  At its simplest, it
```

F1-help F2-save F3-new file F4-import data F5-expand F10-contract Esc-exit

Figure III: Copying text into the Notepad.

If you ever need to transfer information between one program and another – taking a set of figures out of a spreadsheet, for instance, and inserting them into a letter or report – then you'll find Borland's Sidekick a very useful program. But it can do a lot more than that . . .

Running Sidekick automatically

Because I use Sidekick so often, I've arranged to load it automatically whenever I boot my PC1512. To do this, I've set aside a special Start of Day disc; this is an ordinary MSdos System Disc, but on it I've also put a copy of Sidekick and an AUTOEXEC.BAT file.

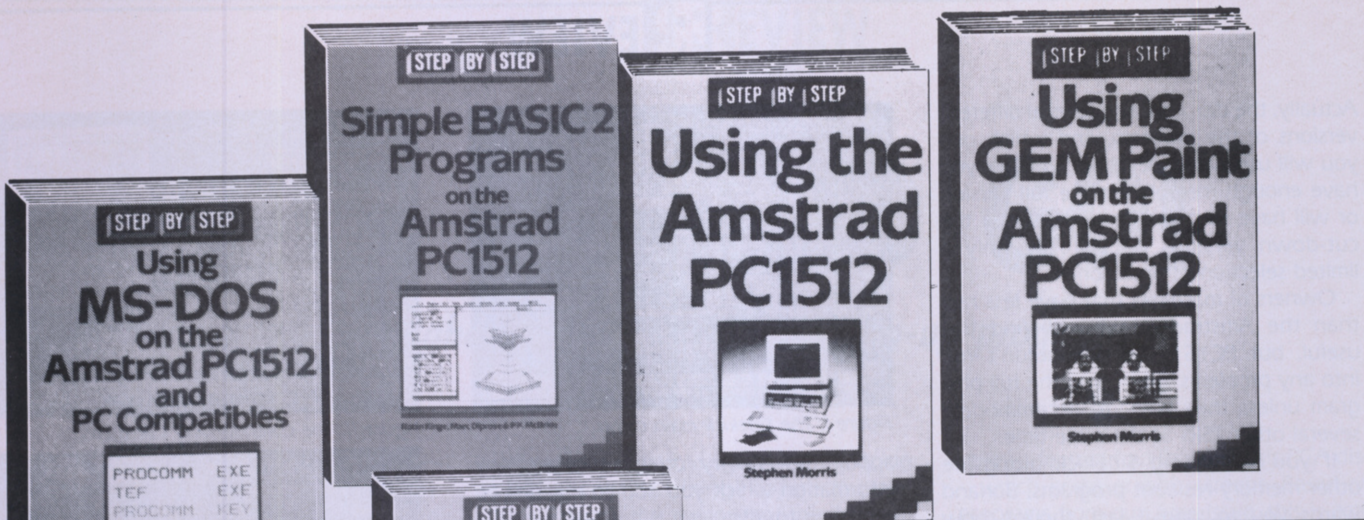
If a file with that name is present on the system disc, it will be automatically executed when MSdos is booted. The only commands I put in this file are SK, which runs Sidekick, and CLS, which clears the screen; other memory-resident programs could be automatically run in the same way.

Which version of Sidekick?

Sidekick comes in two versions, at different prices, depending on whether the name Amstrad appears on the box.

The cheaper Amstrad version is a full implementation of the program and comes with what seems to be an identical manual, so PC1512 users have nothing to gain if they buy the more expensive generic version of the program. Both versions work fine on the PC1512.

However, some reports suggest that the Amstrad version has been log-jammed so that it won't work on non-Amstrad machines. I haven't been able to confirm the truth of this, but it wouldn't altogether surprise me.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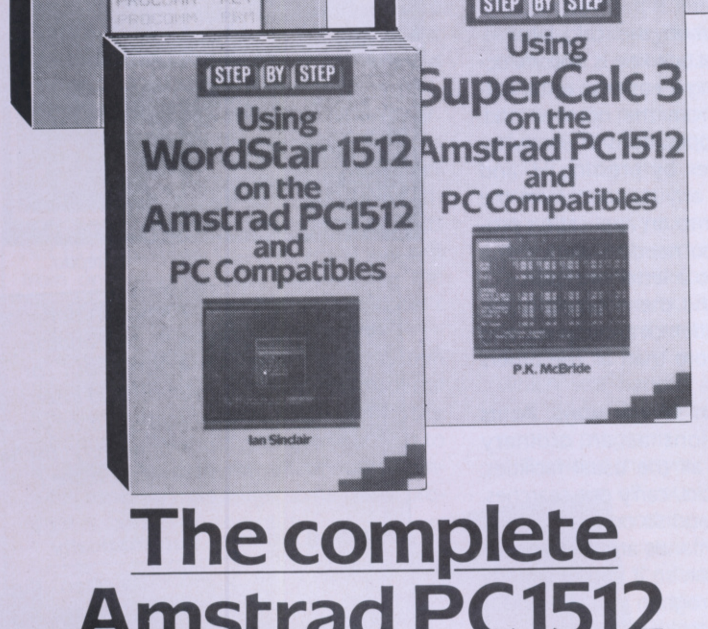
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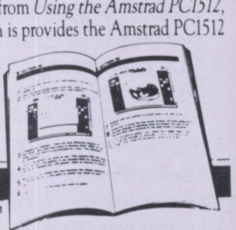

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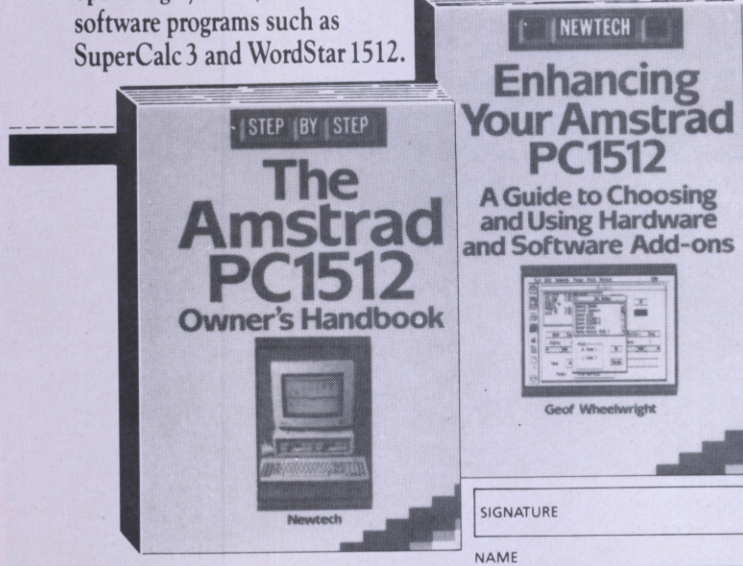
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CPCA2

USING PRINTERS FROM BASIC2

While the Basic2 manual is extremely thorough and a recommended buy, there are inevitably going to be some points about which users want a bit more information.

Typical questions that come up involve using printers and other graphic devices from Basic2, with all this involves in terms of configuration and memory requirements.

Fortunately, courtesy of Locomotive Software, we are able to bring you the definitive text on using printers from Basic2. Now that crisp copy you wanted should be child's play....

Text output

Use the PRINT command with stream #0, or use the LPRINT command. By default, both of these print to the Dos device LPT1.

To use other Dos devices, you will need to first assign one of Basic2's streams to that device. This is done with the command:

```
OPEN #stream PRINT device-number
```

where:

stream is the number of the stream to be used in PRINT commands and

device-number is the number corresponding to the Dos device as follows:

0	PRN	1	LPT1
2	LPT2	3	LPT3
4	COM1	5	COM2

As with all Basic2's streams, you should quote the stream number in all output statements which do not use the default device. You can change the default stream at any time with the STREAM command.

Graphics output

Graphics output can be printed on a matrix or laser printer either by copying the screen to the printer using Dos's screen dump feature, or by using a printer as a graphics device within Basic2. While using the screen dump is simpler, it only gives output with the same resolution as the screen. Using a printer as a graphics device can give far superior quality.

Using the Dos screen dump

To use this feature you must run Gem from MSdos, not Dos Plus. To do this, load Dos from disc 1 (MSdos start-up disc), but do not load Gem yet.

You first have to use the GRAPHICS and MODE commands to set up your PC and its printer.

Use the GRAPHICS command to prepare Dos to print graphics screen displays. If you have an IBM PC Graphics Printer or compatible printer (such as the Amstrad DMP 3000) simply type:

```
GRAPHICS
```

If you have an IBM PC Color Printer or compatible printer type:

```
GRAPHICS COLOR1/R
```

Use the MODE command to set the printer to 8 lines per inch. Type:

```
MODE LPT1:,8
```

Now load Gem and Basic2. To do this, insert the Gem start-up disc, type GEM and follow the instructions on the screen. When the screen shows the items you wish to output to the printer, hold down the Shift key and press Prt Sc. A copy of your screen will then be printed.

To use other printers and for other options of this feature, see the GRAPHICS command in your PC's manual.

Using graphics devices in Basic2

You can produce very high resolution text and graphics with matrix or laser printers, so graphics output can take up a lot of your PC's memory. It is therefore essential that you provide Basic2 with as much memory as possible in order to achieve the best results. Even then, Dos and Gem themselves take up so much memory that you may not have sufficient memory to produce the results you want.

To give Basic2 the maximum amount of memory take the following steps:

☐ Upgrade your PC to 640K of memory.
☐ Remove all desk accessories.
☐ Remove all unnecessary printer fonts
☐ Run Basic2 from MSdos, not from Dos Plus. MSdos is smaller.
☐ Remove any ram (or memory) disc.

Your PC supplier (or manufacturer) should help you to upgrade your PC to 640K.

To remove desktop accessories.

Load the Gem desktop in the normal way. Insert your Gem start-up disc (or select your hard disc) and open the GEMBOOT folder.

You will see a number of files displayed with a filetype .ACC. For each of these in turn – select the file by clicking on it once, pull down the File menu and click on Info/Rename. Change the name to have a file type other than .ACC (for example just delete the final C).

Check that all the accessories have been removed by restarting Gem, and pulling down the DESKTOP menu. No accessories should be listed. If some accessories are still listed, check through all the folders on your start-up disc for other .ACC files, and treat them in a similar way. (When you want to reinstate the accessories, simply restore their names to have filetype .ACC.)

To remove unnecessary fonts.

Use a text editor (or a word processor that can read and write Ascii files) to edit ASSIGN.SYS in the GEMSYS folder. If you like, you can use the Basic2 editor for this – it doesn't matter that it is not a Basic program.

It is a good idea to make a copy first, calling it something like ASSIGN.OLD. This gives you a back-up in case of disaster.

Move down to the section which starts with a number in the printers range (21-30) and a description of the printer you are going to use.

For example:

```
21 epsmonh6;ibm/epson GRAPHICS
printers high resolution MODE;
printer parallel port #1 ( 1pt1: )
```

If you can't find a section corresponding with your printer, stop now. You will need

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to add details of your printer at this point and you will need to install a compatible 'printer driver' for Gem to use. Consult page 499 of your PC manual or ask your dealer if you do not know how to do this.

If there is a section corresponding with your printer, all is well! Remember the number used to start the section (most likely 21, but it could be anything in the range 21-30). You will need to quote this as the device-number in Basic2's OPEN command.

Following this, there is a list of fonts. These take the form:

```
epshss10.ENt;epson hi res (120x144 dots/
inch) swiss 10 POINT
```

Remove as many of these as you can. Ideally, choose to use a single style of text, such as Swiss and a single small point size such as 7 or 10. You will then have that size and style of text available on your printer, plus the same font at twice the size.

Now save the file back as your new (smaller) ASSIGN.SYS and you are ready to run Basic2 using the printer for text and graphics.

To run Gem from Dos with no ramdisc

On a hard disc PC: If you have set your PC up to load MSdos or to offer you a choice of operating system, then you just need to start your PC as normal and, if necessary, select MSdos. If you are not sure, or you always use Dos Plus, then you should start your PC with the red MSdos disc 1 and type C: to select the hard disc. In both cases, start Gem by typing the command GEMSTART.

On a floppy disc PC: The simplest way of running under Dos with no ram disc is to create a new start-up disc specially for this purpose. Have a new blank disc and copies of your Amstrad master discs to hand and follow these instructions:

Format the blank disc for use as a system disc. To do this, insert the red MSdos disc 1 into drive A. If you are not using MSdos, reset your PC and load MSdos from this disc. Then type:

```
FORMAT A:/S
```

and replace the MSdos disc by the blank disc when prompted.

Use the COPY command to copy the following files from Amstrad Disk 1 on to the new disc:

CONFIG.SYS
AUTOEXEC.BAT
KEYBUK.EXE
MOUSE.COM

To do this:

☐ Insert the red MSdos Master disc in A.
☐ On a two-drive PC insert the new disc in B.
☐ Type:

```
COPY A:CONFIG.SYS B:
```

☐ On a single-drive or hard disc PC swap discs when prompted.
☐ Repeat for the other files.

Use the COPY command as above to copy the file GEMSTART.BAT from the blue Gem start-up disc 2 to the new disc.

Use the XCOPY command with /S option to copy the directories GEMBOOT and GEMSYS and their subdirectories from Amstrad Gem start-up Disk 2 (Blue) to the new disc. To do this:

First create new directories on the new disc.

☐ Insert the new disc in drive A.
☐ Type:

```
MKDIR GEMBOOT
```

☐ Type:

```
MKDIR GEMSYS
```

Then, copy the contents of the directories.

☐ Insert the red MSdos Start-up disc 1 into drive A.
☐ Type:

```
XCOPY A:GEMBOOT B:GEMBOOT /S/W
```

☐ Insert the blue Gem Start-up disc into drive A.
☐ On a two-drive PC insert the new disc in B:
☐ Press a key as directed, to start the XCOPY.
☐ On a single-drive or hard disc PC swap discs when prompted.
☐ Repeat for GEMSYS

Use a text editor (such as RPED) or a word processor that can handle Ascii files to edit CONFIG.SYS on the new disc. Remove the line starting:

```
DEVICE = RAMDRIVE.SYS.
```

To use Gem with the new disc, insert the disc in drive A and reset your PC. At the Dos A> prompt, type GEMSTART and press Return.

As you no longer have the ramdisc available, you may encounter problems when you want to leave Gem and return to Dos. To solve these, you should add COMMAND.COM to the Gem Desktop disc and ensure that this disc is in drive A whenever you select Exit to DOS.

To add this to the Gem Desktop disc, copy the file COMMAND.COM from the MSdos disc using the COPY command as above. You will first need to make room for COMMAND.COM on the Desktop disc by erasing DOODLE.APP and DOODLE.RSC.

To test and to use Basic2 to print graphics

Follow the instructions to load Gem from Dos. Load Basic2, and before going any further, check that your graphics printer works. This can be done by a simple Basic2 program:

```
OPEN #5 DEVICE 21
CIRCLE #5, 2500;2500, 2000
PRINT #5, "Hello There"
GRAPHICS #5 UPDATE NEW
```

This assumes that the device number of your graphics printer is 21. If it isn't, substitute the number you discovered in the section on removing unnecessary fonts.

If this program runs it should produce the text **Hello There** and a circle on your graphics printer. If it produces the error **Gem error** in the Dialogue window, you need to free more memory.

It is likely that you have some other software in memory or have not been brutal enough in following all the above steps. Check, too, that the printer font you kept in ASSIGN.SYS has a small point size (say 10 or 7) – the larger the point size, the more memory a high resolution printer font takes.

Once you have succeeded in making this short test work, you can go on to write Basic2 programs which use the printer effectively. All you can display on a graphics virtual screen you can print on the graphics printer. However, you do need to start with the OPEN DEVICE command and must use the stream number (or change the default stream) in all your graphics output commands.

Also, nothing will be printed until you issue the GRAPHICS UPDATE command, at which point the whole page will be printed. Unlike a screen (or a plotter), you can't show each command as it happens – printers just don't work that way.

The final thing to check is that you are working with the coordinates you expect. A screen is normally wider than it is high, and so by default is about 5000 units high and 8000 wide. The printer, on the other hand, is longer than it is wide, and so is only 5000 units wide. You may therefore need to use the USER SPACE command to set printer coordinates to match those on the screen. For the default screen dimensions and an IBM PC Graphics Printer, you can do this by the command:

```
USER #printer-stream SPACE XVIRTUAL
(#screen-stream)
```

If you have a different printer or have changed the aspect ratio of the screen, you will need to experiment with other values to get the desired result. ■

About your PC disc

The disc you received with this month's *PC Amstrad* is one of more than 50,000 specially made for our readers. And it's one of the many that, in the months to come, will enable you to build up a comprehensive library of valuable PC software.

The README file will give you details about all the programs on the disc, and refer you to the appropriate DOC files. You would be well advised to make a backup copy and store the original disc in a safe place.

If you experience any problems with your disc, it will be replaced free of charge. Send it with your name and address to:

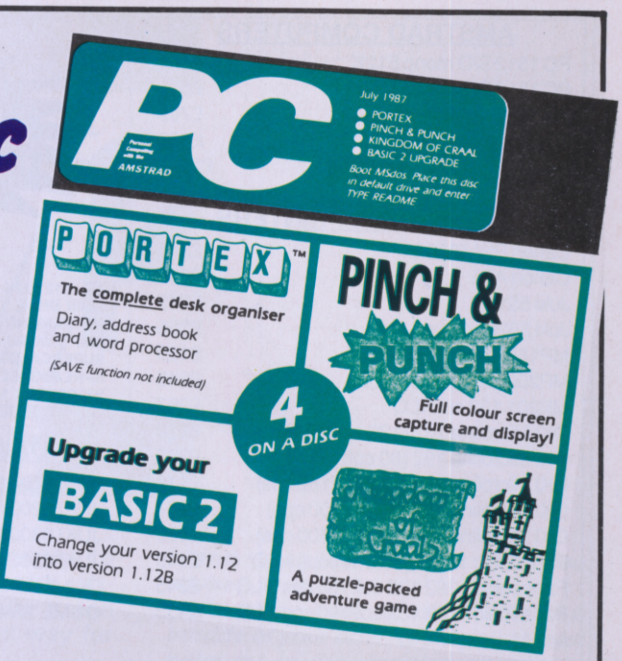
DisCopy Laboratories, 20 Osyth Close,
Brackmills, Northampton NN4 0DY.

If you damage your disc (for example by spilling coffee on it) then include a cheque for £1 to cover postage and packing, made payable to DisCopy Laboratories.

We would be very pleased to have your comments about the disc:

- *Which program did you find the most useful?*
- *Would you like to see more demos of commercial packages, and what type?*
- *What other programs would you like us to provide?*

If you have written a program you think will appeal to other Amstrad PC owners, send it to our Disc Editor at Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. All submissions will be paid for.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PCA7

THE HELP PAGES

Q *BEFORE buying my PC I had a CPC6128 – which I still own – on which I did word processing (Tasword) and accounts (Connect Systems).*

I have quite an amount of data on Amstrad 3in discs. Is there any relatively inexpensive way of transferring this to 5.25in disc for use on the PC or would it be possible to link the two directly? I am sure that many readers will have similar problems.

Might I also request that one of your reviewers turn his attention to the many database management systems available? – Rev.S.Kearney CC, Omagh, N.Ireland.

A PROBABLY the easiest way is to connect the RS232 port on the PC to the official Amstrad RS232 serial interface for the CPC series. You'll also need a lead making up to join the micros, but this should be no problem to anyone the least handy – especially as the CPC add-on comes with detailed instructions of how to connect it to all the common micros.

You then use file up/download software on both micros – preferably with a shared protocol such as Xmodem – to do the transfer.

The problem is using the transferred data with the software you've got on your PC. Although all the data and information you input on your CPC is still there, it may not be in a form your PC1512 can use and converting it to a format that is suitable can involve some tedious if not downright tricky programming.

Word processor files are perhaps the easiest to transfer, provided they're written in Ascii or non-document mode – though even "standard" Ascii format can vary wildly from one piece of software to another.

Database and Accounts files can be even more problematical unless they have a specific import and export facility to make files more portable between machines. Often import and export files are just standard Ascii with special characters as delimiters between fields and records. One of the best databases in this respect is Superbase.

In general, then, the best way to do the transfer is to get someone else to do it for you. And when you pick software for your PC, make sure it can export its files in a nice Ascii way for your next micro to pick up.

As for databases, the features in this issue should give you some food for thought.

Q *I don't know if I'm cheating by writing to you in this way for the advice I seek, but here goes.*

I have an Apple II which, as you know, is a bit in the model T range as far as computers are concerned. I want to move up to an Amstrad and I was looking at a PC1512, but I need some professional advice on the software to go along with it.

My usage is as a freelance sports writer for the News and Sports Mail in Portsmouth and the Isle of Wight based Weekly Post.

I need a good word processor program that will be easy (very easy) to use. One that will provide a WYSIWYG facility. One that with the printer will give near letter quality and with good filing and a spelling checker.

Also, I need a program to write out League tables on a weekly basis. The one I have is very good for working out the results, but it needs one or two further refinements to make it a record of games played as well. For this I was hoping you could advise me if any program accounts record would do the job.

If none exists there is a vast untapped market for such a program. Many non-league football clubs produce their own match programs – maybe on an Amstrad – and a first rate computer program could be a good seller.

Finally, on behalf of the Island Football Association, I have been commissioned to produce a book on the 100 year history of football on the Isle of Wight. This will involve some hundreds of records and cup and league winning teams.

To aid this work I would need a file that could take all the entries over the years, and on request, pick out specific requirements. For example, "How many times have Shanklin won the Island League?" Again, can you advise?

It's rather a lot to ask. If all this is outside of your brief, could you at least point me in the direction on who to ask. – M.Bull, Shanklin, Isle of Wight.

A It is rather a lot to ask, but we at *PCA* are helpful folk. Probably the simplest word processor program for you is Gem Write, though it hasn't got a spelling checker. Mind you, a lot of people don't believe in spelling checkers. And WYSIWYG isn't all it's cracked up to be. Have a read of last month's special feature on word processors – Gem Write is reviewed there – and you should get some help in making your choice.

As for your other requirements, you don't need accounts software. You could use either a database or a spreadsheet, depending on exactly what you want, though a database with limited mathematical facilities is more likely to suit and will be initially easier to use.

However, your task is decidedly non-trivial and you'd need to spend considerable time thinking through how you want your records keeping and what you want from them. You may find that scaling down your expectations of what the micro will do for you will enable you to use one of the easier packages such as Superbase, Condor Jr or Flying Start.

Q *I HAVE had a PC1512 DD Colour Monitor since late December and use Wordstar 1512, printing on a Citizen 120D and am very pleased with the results that I get. I am writing to you at PC Amstrad in the hope you can answer me a question concerning WordStar 1512.*

With regard to the ram disc set up by Wordstar 1512 of 200k: As far as I can see this is only for keeping files in and as I have twin drives anyway it really serves little purpose. Would it affect the program if I prevented the disc being set up or made it smaller, say 60k by editing the batch file on the start up

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disc? Would it for instance allow larger documents in memory before the program starts spooling them on to the disc which tends to slow down the scrolling?

Your advice on this matter would be very welcome. Also could anyone tell me what a "FATAL STACK ERROR" is as I have had one while running a batch file on MSdos that I wrote using XCOPY to copy files from disc to disc. The computer completely hung up, requiring power off to get control back.

This error message does not feature in the list provided in the User Instructions book and so I am somewhat stumped as to the cause. Immediately prior to this fatal error I had an "Error during piping" message, which resulted from my incorrect use of variables in the batch file. – J.R.Fisher, Cobham, Surrey.

A YOU can alter the ram disc as you suggest and it will let you keep a larger document in memory before spooling. However, it's going to be one rather large document. Are you sure you want to run the risk of someone tripping over your power lead and pulling the plug?

As for the second point you raise: The stack is a temporary workspace in ram that your micro's operating system uses as a sort of scratchpad. However, as with a stack of cards, if you don't want to run the risk of the whole thing collapsing you have to put things on and take them off from the top. Similarly the last thing your micro put on its stack should be the first thing it takes off.

Now a fatal stack error can be caused by trying to take out one of the base "cards", so the whole structure collapses; by running out of space; or by looking for your stack in the wrong place.

It's probable that during your piping experiments you managed to confuse the micro by giving it too much to remember, or actually obliterated the stack by overwriting it in memory. Without knowing exactly what you did it's hard to be more specific.

Q *I READ your first issue with great interest. I was interested in particular with the article IBM v Amstrad. However, I was disappointed that the article did not point out the apparent complete incompatibility with Basic.*

I do not think that I am unusual in having written many Basic programs that run on the IBM and compatibles and was sold the Amstrad on the grounds of its IBM compatibility. What a can of worms it turns out to be.

There is a lot of scope for some clear articles on transferring Basic programs from IBM and compatibles across to the Amstrad. As a start here are some questions that are puzzling me.

IBM supplies a Basic called Basica but another Basic that runs on IBM machines is GW Basic. I've developed

THE HELP PAGES

all my programs on a Compaq and they run okay on IBM and compatibles (except the Amstrad). The Basic supplied with the Compaq is called Basica but I gather it's really GW Basic.

There seems to be a difference because at least I can get my Compaq Basic programs to load and run under MSdos on the Amstrad until they reach OPEN statements. The colour, sound and graphics are all okay. Should the Amstrad run GW Basic? Is my Compaq Basica really GW Basic? My IBM Basica doesn't load at all on the Amstrad.

In particular how should a Basica statement such as:

```
OPEN F$ FOR OUTPUT AS #3
```

be amended for the Amstrad?

I hate the clumsy and tortuous Gem environment – how can I run Basic2 programs automatically from start up?

I can't seem to be able to load my Basic programs into Basic2 as listings for editing? Can I edit using a word processor and load the saved file into Basic2?

Would the answer be to compile my programs? If so, would any Basic compiler do or do I need a Basica compiler, a GW Basic compiler and so on? I can find no reference in the Amstrad Basic2 book to compiling programs. Does a compiler exist; is it supplied on the handful of discs that come with the Amstrad?

Until I can get a disc of Basic programs to run on the Amstrad as they do on the IBM and its compatibles I cannot regard the Amstrad as IBM compatible. For home enthusiasts it is completely misleading to claim it is, as many work in Basic, and have existing programs they want to transfer.

For business applications it is an irrelevance as the software would obviously be supplied in a suitable form to run on the machine in question. For instance I don't care how Microsoft needs to alter the source code of Multiplan to run on other machines – just as long as my copy runs on my machine.

My comments apart, any light you could throw on my questions would be most welcome. – R.Carter, Reading.

A PC compatibility is a much abused term, and in many respects should be used as a relative one rather than an absolute. Much of the concern is with the hardware and operating system environment, rather than application programs like Basic. There are a number of PC compatibles which do not even include MSdos in the price, so that the Amstrad with three operating systems does rather well.

The Basic for the IBM was written by Microsoft, who also supplies versions for PC compatibles often called GW Basic (short for Gee Whizz Basic), but sometimes called BasicA or Advanced Basic. Versions written for the IBM would not be expected to run on other machines because part of the Basic is in the rom which also includes some primative Dos functions (the BIOS).

Many of the ideas of BasicA are found in Basic2, making translation relatively easy. For example:

```
OPEN F$ FOR OUTPUT AS #3
```

becomes:

```
OPEN #stream OUTPUT file$
```

Gem can seem rather tortuous at first, but familiarity does help. We'll be showing you in a future issue how Basic2 can be run from one disc. For the moment you need to know that by adding a program name at the end of the command to call Basic2, that program will run automatically.

As an example copy the DEMO.BAS file onto the disc and use RPED to change the last line of the AUTOEXEC.BAT file to:

```
GEMVDI BASIC2.APP DEMO
```

This will load Basic2, then load and run the demonstration program.

You will not be able to load standard BasicA programs into Basic2. This is because BasicA programs are stored in a compressed non-Ascii format, whereas Basic2 programs are stored as Ascii characters. It is possible to save GW Basic programs in the correct format for Basic2 by adding ,A to the end of the SAVE command, as in:

```
SAVE"PROG",A
```

Such programs may then be word processed if necessary, but ensure that the word processor is working in a non-document or Ascii only format, otherwise you will introduce new problems.

There is not a Basic2 compiler on the discs supplied with the Amstrad. This is not too much of a handicap because it is one of the fastest interpreted Basics around.

If having an IBM compatible Basic is really important, it might be worth while for you to buy an version adapted for the Amstrad.

Having problems making the most of your PC1512? Then why not drop us a line with your question? The address to write to is:

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HOUSE CALL

Mike Gerrard meets the Microprose team

> *"I was told there are three people you don't want to meet at an airport: A religious fanatic, who'll try to convert you, an insurance salesman, who'll try and sell you insurance, or the President of MicroProse, who'll ask you if you've got a personal computer. I think that's probably true, but only because I'm very enthusiastic".*

VERY enthusiastic is a mild way of describing the President of Microprose, Major Bill Stealey, one-time fighter pilot and now chief advisor to the Joint Chiefs of Staff at the Pentagon in Washington.

He has the fervour of an evangelist, and an interview is punctuated by thumps of his fist on the table as he emphasises how great the next MicroProse product is going to be. But what else would you expect from someone whose nickname is "Wild Bill"?

"I've been Wild Bill since I was in about 10th grade in high school, that's when you're about 15 or 16 years old. I was taken on a basketball team, and to be honest I was not a great basketball player. But I wanted to play. I think any game is 60% of heart and determination and 40% good athletic skills. In playing defence I would follow the other guy to the men's room if that's what it took. I'd run my heart out for six or eight minutes and the coach would bring me out for two minutes, panting like a dog, then send me back.

"It was that coach who always used to say: 'This is my own Wild Bill right here'. That's really where it came from, but it's that fighter pilot 'can do' attitude. You give me the problem and the information and I'll go away and do something about it.

"I had an old boss one time who told me that if I was right about 65% of the time then I'd make an awful lot of money."

Bill Stealey must have been right well over 65% of the time, because MicroProse's sales have risen from $200,000 in their first year, 1982, to over $10 million and rising in 1985. Last year they decided to open a European office to handle sales and distribution of their own games, and MicroProse Software Ltd was formed with its base in the Gloucestershire market town of Tetbury, with Stewart Bell as managing director.

"I've had a fairly technical computer background," Stewart told me, "but I was also interested in games. I went over to the States a lot and used to go to this software shop called The Warehouse and I'd spend anything up to $50 on games for the PC. I even bought F-15 Strike Eagle, which has been one of MicroProse's best sellers.

"Then when I was over there one time I met Bill, who I thought was just a crazy American, but later on he said he wanted to talk to me about a job. When I went along to see him we didn't talk about the job at all, we sat round and talked games and played games – Silent Service, I seem to remember.

"Later on we had other meetings and got round to sorting out things more formally, and now we've got this European office with 27 people already and another four or five joining in the next month."

The main reason for the company settling on Tetbury is because Stewart Bell lives just a few miles away, though he admits that cheap office space plays its part as well.

The view from his office window in Market Place is of a 600-year-old building, a far cry from the Las Vegas video arcade where Bill Stealey and his programmer-partner Sid Meier founded MicroProse.

Stealey and Meier were working for the General Instrument company at the time, as well as both being members of an Atari 800 users' group. On a business trip to Las Vegas and losing $50 in a casino, they sought consolation in an Atari arcade game, Red Baron.

Meier was unimpressed, and said he could write a better game in a week. "You write it and I'll sell it," Stealey promised. Meier wrote it, and Stealey walked into a computer store and sold 100 copies of Hellcat Ace. Out of the profits they formed MicroProse. At first it was a back-bedroom operation, with wives and children hauled in to answer phone calls and letters and help with the duplication of lengthy manuals. It took a couple of years before MicroProse was a full-time job for Stealey and Meier.

I asked Stealey if MicroProse really did begin in such an almost accidental manner.

"Well," he told me, "it was accidental only in that that was what was founded. I was already on the hunt for doing something of my own.

"By the time of MicroProse, I'd been in the corporate business for about six-and-a-half years and realised I couldn't hang around long enough to do the kind of things that I wanted. My boss at this company said he liked my work, I was good, and in 20 years I might get to be head of that division.

"Twenty years? I was thinking more like two months. So I was looking for a business to buy or start or whatever, and when MicroProse began I thought: Right, this is a little bit of what I want to do, and we'll keep looking for the real business.

"MicroProse was a business that I knew I could do, I'd found something that was uniquely adjusted to fit to my type of personality, but I didn't think it was gonna be a real business. It was gonna be fun and I was gonna be proud of it, but the whole thing took off and took over."

Taking off is an appropriate description, as MicroProse has made its name with a range of flight and other simulators.

Bill Stealey's flying experiences have obviously helped in developing some of the MicroProse products, though he cut down on his flying hours a couple of years ago with his wife's increasing worries about the risks of an accident.

So what do his ex-colleagues, experi-

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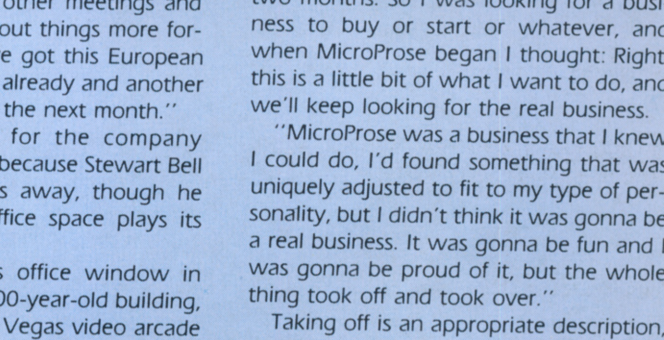

A screen from Silent Service

◀ **From Page 71**

enced flyers, make of his MicroProse products?

"Way back in the beginning, when Hellcat Ace came out, I was flying for the Air National Guard and they were all saying: 'What is this, you're doing games?' These are very serious airline pilots, corporate pilots, military pilots, and they all said they had no time for playing games.

"Then one day after flying I took in a copy of Hellcat Ace and a computer and linked it up to the TV behind the bar and we were all drinking beer and I dragged the first pilot in and he started having a ball. Then the next guy, and the next, and all of a sudden we had almost the entire squadron in.

"Now that's an older game, and I remember when it first came to Britain someone said, well, that's not graphically very exciting, but I also remember this squadron commander, a full colonel in the United States Air Force. He said to me: 'This is goddamn good, I can't believe it!' The colonel was learning more about air-to-air combat and air-to-air manoeuvering and it was not because it had the greatest graphics or the neatest explosions, it was because it had turn radius, it had gravity, and he had to think while he was playing what he thought was just a game.

"With Solo Flight people said, 'Oh, couldn't we have had some neat buildings in here?' But I said that buildings don't teach you anything about flying. Weather, instrument failures, mechanical failures, wind, that'll teach you about flying."

F-15 STRIKE EAGLE
SILENT SERVICE
THE SUBMARINE SIMULATION
GUNSHIP
MICRO PROSE
Is It a Game — Or Is It Real?
NATO COMMANDER
MicroProse Software

"Wild Bill" Stealey, President of Microprose

But is there a limit to what you can do with a simulation?

"Is there a limit as to what you can do with aeroplanes? I mean, they've been around since just after the turn of the century and they keep getting better. Now you've got a European fighter and a French fighter and a British fighter and so it goes on. Space is the next frontier.

"Even driving a car, as boring as that can be, can still be a very interesting simulation if you do it well enough. Could you imagine taking the Cotswolds graphically on a disc and you could sit at home and visit every place in the Cotswolds in a simulation?

"Wouldn't that be terrific? And it's coming."

Trying to drag Major Bill back to discussing the more immediate future, I asked about MicroProse's next release, Pirates, which will allow the player to travel back in time to the 16th and 17th century buccaneering days of the Caribbean. It's a game that Stealey says will give an adventure-game feel in a simulation environment, with a few extra aspects thrown in for fun.

Stealey says: "We're going to tell you exactly what the Caribbean was about in the 16th and 17th centuries, about the buccaneers and the privateers, about what the political and historical times were like.

"Sid and I are both very interested in history, even though he was a mathematician and I was an aeronautical engineer. We just love to sit around and talk about that. And Pirates came about because Sid took his girl-friend to the Caribbean and got keen on the idea, and when he gets keen on an idea then I tend to listen as his ideas usually sell a few hundred thousand copies each."

Pirates will be out on the Commodore 64 by about June, with a PC version soon after. Stewart Bell explained that the PC market formed a large part of MicroProse's UK plans: "We believe the market's developing and maturing over here as it has done in the States.

"Our products are aimed at the adult male, which is an unfortunate way to phrase it but what we mean is that the majority of people who buy a MicroProse product are men in the 18-40 age range.

"There's also a great loyalty, incidentally, as our customers tend on average to own at least three MicroProse games. But we also think that the computer market, the PC market that Amstrad's given this great boost, is the 18-40 male age-range as well."

So what will MicroProse UK have to offer all these PC-owning adult males in search of a little simulation?

Stewart Bell says: "We've got a version of F-15 Strike Eagle, which is the flight simulator the American Navy use to teach strategy to their pilots. It's been out for three years, but sold more in the year to last October than ever before, and we've brought out a special version to make use of the mouse on the PC1512.

"We have Gunship coming as well, that's the helicopter simulation, and the American Army use this one to stress-test their pilots after a real mission. You've got to build up your experience and abilities and there are medal ceremonies, leading up to the ultimate, which is the Congressional Medal of Honor. In the whole of America there's only one player who's ever written in to say that he's got that far."

Now there's a challenge for the British PC armchair pilots. As Stewart Bell pilots me through a demo of Gunship, he mentions that the MicroProse flying enthusiasm has started to spread and he's taking his first lesson the following week.

With Major Bill? I swear Stewart turned white at the thought: "No way! I'm nervous enough as it is. Second prize would be a flight with Wild Bill, first prize would be you didn't have to take the flight". ■

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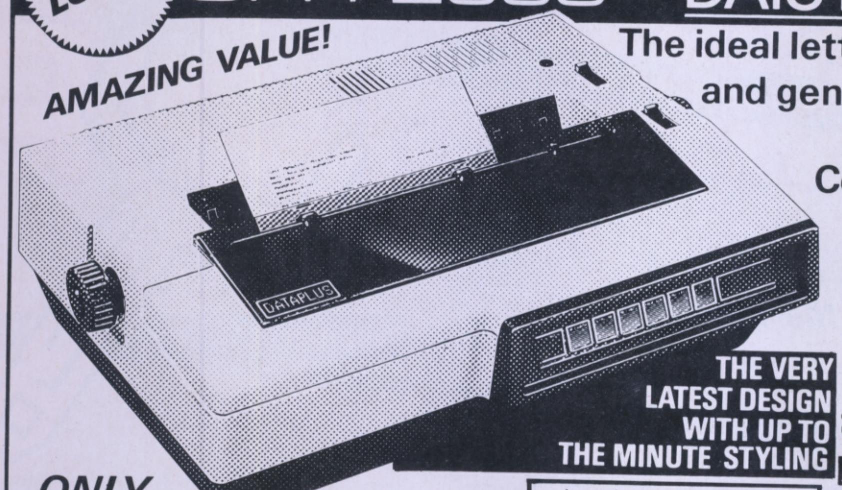

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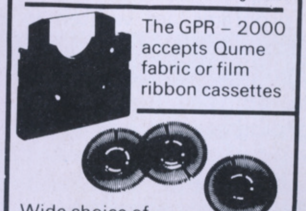

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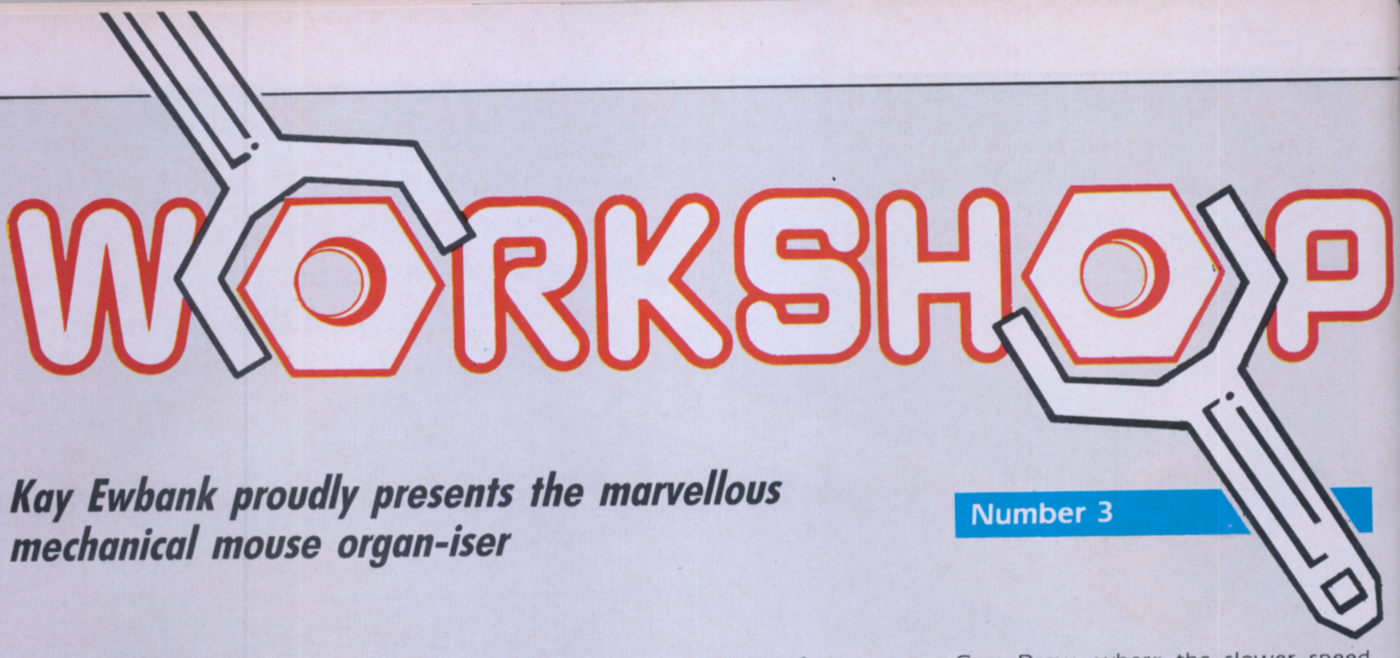

WORKSHOP

Kay Ewbank proudly presents the marvellous mechanical mouse organ-iser

Number 3

THERE are two regular users of Gem in our office with very different views about their mice. One constantly mutters "Come on, get a move on " and "This thing takes forever". The other, lets loose various curses as she overshoots the bit at which she is pointing. Eventually both switch off the mouse if at all possible in favour of the cursor keys.

So that I (and all those out there who suffer) can get a little peace and quiet, here are three small programs to change your mickey/pixel ratio, or in other words to control the amount you have to move your mouse in order for your pointer to move around the screen. (A mickey is the Amstrad standard unit of mouse movement!)

The programs are written in either Turbo Basic, and for those who haven't got Turbo Basic, assembler. The latter version can be typed in using the standard Debug program and even if you don't follow what is going on you can just follow the recipe!

Those who are normal like me will find the slow mouse useful in applications like Gem Draw, where the slower speed means a greater degree of accuracy for your diagrams. The fast mouse is nice for zipping around documents.

There are three versions of the program – one fast, one slow and one medium. Assuming you're in Turbo Basic (assembly versions are in the panel) enter the program for the mouse speed you think will suit you best, choose Options from the menu and from there change 'compile to

Programmer's bit

These programs work by way of system interrupt 33 to perform function 15 of the mouse driver software. The Mouse driver functions can be found in Appendix One of the Amstrad PC Technical Reference Manual. Function 15 requires register CX to contain the horizontal Mickey/Pixel Ratio required, and likewise register DX to contain the vertical ratio.

As there are only 200 pixels vertically as opposed to 640 horizontally, to make the mouse movement per inch of screen movement seem reasonably equal in both directions, I have set the horizontal Mickey/Pixel Ratio to twice the vertical one.

To change the speed at which your mouse runs to be more in time with your fingers, change the values after the commas in the lines starting mov cx and mov dx in the assembly language versions, and reg 3 and reg 4 in the Basic versions.

A higher value will give a slower mouse, a lower value a faster one. Remember that the numbers in the assembly language versions are in hexadecimal, so increasing 40 to 50 actually adds 16 to the value, not 10.

Assembly language versions

If you do not have Turbo Basic, you can enter versions of the programs using DEBUG.

Place a disc containing DEBUG.COM in the default drive and from MSdos or Dos Plus type in one of the following set of lines.

For the fast mouse type:

```
debug
```

At this point the debug prompt '-' will appear. Enter:

```
n fast.app
a
mov ax,0f
mov cx,04
mov dx,08
int 33
int 20
```

At this point press the return key to get back to debug's – prompt, then type:

```
r bx
```

The current value held in bx will appear followed by a colon. Type:

```
0
```

Then follow the same routine for the cx register:

```
r cx
d
```

To save the program type:

```
w
```

A message saying 'writing d blocks' will appear. Then type:

```
q
```

and you should get back to the MSdos prompt.

For the medium mouse replace the lines:

```
n fast.app

mov cx,04
mov dx,08
```

with the lines:

```
n medium.app

mov cx,20
mov dx,40
```

If you want the slow mouse then replace same lines with:

```
n slow.app

mov cx,40
mov dx,80
```

As in the case of the Basic versions of these mouse modifiers, all you have to do is double click on the speed of your choice while in Gem Desktop.

One problem to be aware of is that if you exit from Gem to use an MSdos application, your mouse will be returned to its standard speed when you re-enter Gem, and you will have to reselect the speed you require – a small price to pay for an obedient mouse.

The Basic routines

FAST MOUSE

```
rem fast
reg 1,15
reg 3,4
reg 4,8
call interrupt &h033
end
```

MEDIUM MOUSE

```
rem medium
reg 1,15
reg 3,40
reg 4,80
call interrupt &h033
end
```

SLOW MOUSE

```
rem slow
reg 1,15
reg 3,60
reg 4,120
call interrupt &h033
end
```

memory' to the .EXE file option.

Compile the program and exit to either Gem Desktop or the system. Rename the file as .APP, and when in Gem you will be able to simply click on the .APP box, after which you will have a turbo-charged mouse. Of course if you would like to be able to select your mouse speed then type in all three and give them names such as FAST, SLOW and MEDIUM. Then all you have to do is double click on the speed of you choice. ■

Perhaps you've got some interesting routines that could find their way on to the pages of Workshop. If so, why not send them in on disc together with explanatory text – in plain vanilla Ascii, please.

We,ll accept short routines in Pascal, Basic2, assembler ... in fact anything interesting.

So do send your routines in. Next month's Workshop could be written by you!

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NEWSLETTER

High tech thrives on Sark

THE bucolic island of Sark – population 500 and not a car to be seen – is, surprisingly, a major user of information technology.

"Sark is a thriving financial centre due to its tax-free status, so electronic communications are a vital element here", explains MicroLink subscriber Philip Stokes who has lived on the island for 13 years. "In fact I reckon we have the world's highest ratio of telex and fax machines per head of population".

Philip owns a gift shop, but he used to work on the London Stock Exchange and when he isn't serving tourists he operates an administration service for offshore companies.

"Efficient movement of documents is essential to properly maintain an offshore company's Sark registration", says Philip. "But while the ferries carrying our mail run like a bus service in the summer, rough winter weather can easily cut us off for days at a time.

"The Guernsey authorities are about to provide an electronic mailbox facility which will help make up for our lack of PSS, and I'm confident my investment in computer communications will have paid for itself within a year thanks to MicroLink".

Help for the handicapped

A CALL for computer users to put their brains to work on behalf of the handicapped has come from MicroLink subscriber Brian Vallot-Lewis.

Brian is disabled by a rare disease called Friedreich's Ataxia which affects a victim's coordination, balance and speech.

He says:"I'm extremely lucky in that I'm still just about mobile, but others are not. Many sufferers are completely untechnical, but some of us can see huge possible benefits from the use of a micro.

"I am currently working on a dictionary word entry system, the main advantage of which would be greatly reduced use of the keyboard in word processing and programming.

"This is only one example of the kind of thing we need. Help with software ideas, complete programs, or just tips and advice could open one of the prison doors for someone confined to a wheelchair".

Your chance to join MicroLink – see Page 51

Discounts on view

THE latest firm to display its wares in MicroLink's Shop Window section is run by Paul Lange, descendant of a Lithuanian family which emigrated to Britain at the turn of the century.

Paul has been exporting computer software and peripherals to home and business users overseas for the past two years. His customers range from Europe and North America to Australia, Israel and North Africa.

Recently he decided to extend Veyair's discount offers to UK residents, and chose Shop Window on MicroLink to display his products.

LINK TO CUT COSTS

TO combat the effects of the crippling disease which afflicts more than 15 million people worldwide, the Leprosy Mission helps support more than 2,500 doctors, nurses and paramedics caring for 400,000 lepers in 30 countries.

The interdenominational Christian organisation has 16 area organisers throughout England and Wales who are being connected by MicroLink electronic mail in a pilot scheme designed to speed the flow of information while cutting the cost of communications.

"We hope to make savings in our overheads that will allow us to send more money abroad to help leprosy victims", said Dr Tony Lloyd, the man in charge of the project.

"To produce and circulate a memo to our area offices in the UK can cost as much as £25 – by MicroLink Email we should be able to do the job for under £2".

From the Antarctic with love . . .

ELECTRONICS technician John Mackintosh couldn't work much farther away from home than on a scientific research vessel in the icy waters of Antarctica. But he is in constant touch with his wife in Scotland thanks to a combination of MicroLink and Inmarsat, the international marine satellite system.

Contracted to an international scientific foundation, John's ship travels all over the world doing ocean research.

For some time it has been using electronic mail as a relatively cheap alternative to regular telex services for communicating with its base office.

"So when I was looking for a means of keeping in touch with home while at sea, the obvious solution was Email", said John.

"Inmarsat is an extremely reliable means of communications – though it's expensive at about £5 a minute. By using a MicroLink mailbox, however, my wife and I can exchange letters in a fraction of the time taken by voice calls and make considerable savings.

"Because MicroLink is available 24 hours a day, I don't have to set up any particular schedule with my wife, and I can use the ship's communications system whenever it is available".

PC
Personal Computing with the AMSTRAD

Basic 2 keywords

Part 2

THIS month we continue with our quick reference guide to Basic2 keywords. The first part was published in the June issue of *PCA,* and the final instalment will appear next month, in our August issue.

If you've got version 1.12 of Basic2 you should take advantage of the PATCH programs on this month's PCA disc to convert it into version 1.12B.

Index of sections

Part 1	(last month)
1	Program Control and Structuring
2	Variable and Array Handling
3	Text Output
Part 2	(this month)
4	Input from Keyboard + Mouse
5	Disc Handling Commands
6	File Handling
7	Mathematical Functions
8	String and Character Handling
9	Operators
10	Error Handling
Part 3	(appearing next month)
11	Window Control
12	Graphics: Settings + Functions
13	Graphics: Drawing
14	Turtle Commands
15	Miscellaneous
16	Virtual Device Functions

Command structure

BUTTON Give the state of a given mouse button.
Syntax: BUTTON [(button)]
where: *button=1* is left hand button and *button=2* is right hand button.
Example: result=BUTTON
A result of -1 shows that the button has not been pressed

INKEY Give the equivalent value, ('Ascii'), of a key typed at the keyboard.
Example: a=INKEY

INKEY$ Give the character of the key typed at the keyboard
Example: a$=INKEY$

INPUT Input data from the console.
Syntax: INPUT [#stream,] [AT (x;y)][;][prompt;]list of variables
Example: INPUT AT (5;2) ''Type in a number (then press RETURN)'';num

INPUT$ Input a fixed length string.
Syntax: INPUT$([#stream,] string-length)
Example: INPUT$(3)

LINE INPUT Input a complete line, including leading spaces, commas and trailing spaces.
Example: LINE INPUT everything$

**OPTION INKEY$** Some keys have a value greater than 255. This option sets up a translation table for them when using INKEY$. By default this is a string of 256 characters, with each character set to character 0. The translation table works by subtracting 256 from the value of the key pressed, then using this number as an offset into the character string.

XMOUSE Read the x coordinate of the current pointer position in screen coordinates.
Example: xresult=XMOUSE

YMOUSE Read the y coordinate of the current pointer position in screen coordinates
Example: yresult=YMOUSE

Turn to Page 79 ▶

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The April 1986 issue of PERSONAL COMPUTER WORLD concluded: "The range of functions provided by LOGISTIX is unusually wide. At £395 it provides excellent value for money." Now at only £99.95 it offers unbeatable value to the PC user.

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The truth about TELEX

How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay over the first year of a minimum of £2,109. (All prices include VAT.)

Or you could do what more and more Amstrad PC users are doing – use your PC to double as a Telex machine. And just use your ordinary telephone!

How do I turn my Amstrad PC into a Telex machine?

All you need is a modem and appropriate communications software (see the advertisements in this issue), a telephone, and a subscription to *MicroLink*.

Telex is just one of a growing number of services available to Amstrad PC users on *MicroLink*. With it you can also read the news as it happens, go teleshopping, create your own closed user group, send telemessages and electronic mail right round the world, download free telesoftware programs directly into your micro . . . and much more.

But why use Telex?

Because it's a standard means of instant communication between businesses. Today there are 150,000 Telex machines in use in Britain – and more than 2 million worldwide. It's to dramatically speed up business communications – just as quick as using the phone but far more efficient, because you have a hard copy of every "conversation" for your records.

But there's a big bonus you get when you use *MicroLink* for Telex that the conventional way doesn't offer.

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How to join: See Page 51

◀ From Page 77

Basic 2 keywords
Part 2

5) Disc handling commands

CD	Change directory.
Example:	CD directory-name
Note:	No quotes around the directory name
CHDIR	Change directory.
Example:	CHDIR "directory-name"
Example:	a$="directory-name": CHDIR a$
Note :	The directory name must be a string.
CHDIR$	Give the current directory.
Syntax:	CHDIR$ [(drive$)]
Example:	CHDIR$ ("A:")
Result:	\BASIC2\
DEL	Delete files.
Example:	DEL filename
Note :	No quotes around filename.
DIR	List the directory in the Dialogue window.
Example:	DIR *.BAS
DISPLAY	Display the contents of a file.
Example:	DISPLAY "EXAMPLE1.BAS"
DRIVE	Set the default drive.
Syntax:	DRIVE string-expression
Example:	DRIVE "A:"
ERASE	Delete a file
Example:	ERASE rubbish.bas
Note:	No quotes around filename.
FILES	List the directory on the default or given stream.
Syntax:	FILES [#stream] ["filename"]
Example:	FILES "*.BAS"
FINDDIR$	Look for a given directory and return its exact name.
Syntax:	result$=FINDDIR$(string-expression[,position])
Example:	result$=FINDDIR$("B*")
Result:	result$ will hold the name of the first directory that starts with a "B" or "" if there is none.
FIND$	Look for a given file and return its exact file name.
Syntax:	FIND$("filename" [,position])
Example:	file$=FIND$("*.*",2)
Result:	In this case file$ will have the name of the second file in the directory or "" if there is none.
KILL	Erase a file
Example:	KILL "filename"
MD	Create a directory
Example:	MD directory-name
MKDIR	Create a directory
Example:	MKDIR "directory"
NAME	Rename a disc file
Example:	NAME "oldname" AS "newname"
OPTION SELFILE$	Sets SELFILE$ (see SELECTOR below)
OPTION SELPATH$	Sets SELPATH$ (see SELECTOR below)
OPTION SELWILD$	Sets SELWILD$ (see SELECTOR below)
RD	Remove the named directory.
Example:	RD directory
REN	Rename a disc file.
Example:	REN oldname, newname
RESET	Reset file system to allow discs to be changed.
Example:	RESET

5) Disc handling commands (cont)

RMDIR	Remove (delete) the given directory.
Example:	RMDIR "directory"
SELECTOR	This lets a Basic program produce the screen window you see with loading and saving programs. It displays the files that are in the named directory and places the selection-name in the filename box. Files' names may be selected as in the normal load and save window. In addition it has two boxes marked OK and Cancel. A result is produced and is 0 if OK is clicked and −1 if Cancel is clicked.
Syntax:	result=SELECTOR [directory-names], [selection-name]
Example:	r=SELECTOR "\BASIC2\EXAMPLE\*.BAS","EXAMPLE1.BAS"
Other actions:	Information obtained by SELECTOR is held in three strings:
SELFILE$	holds the currently selected filename.
SELPATH$	holds the pathname.
SELWILD$	holds the filename portion of the directory string, including any wildcard characters.
TYPE	Displays an Ascii file in the Dialogue window.
Example:	TYPE "filename"

6) File handling

ADDKEY	Add a new key for an existing record in a keyed file.
Syntax:	ADDKEY #stream KEY expression [INDEX index-number] [LOCK lock]
Example:	ADDKEY #file KEY number INDEX 1
ADDREC	Add a new record and key to a keyed file.
Syntax:	ADDREC #stream, string-expression KEY expression [INDEX index-number] [LOCK lock]
Example:	ADDREC #5,r$ KEY m$ INDEX 2
CLOSE	Close one or more files.
Syntax:	CLOSE [list-of:#stream]
Example:	CLOSE #disc, #9
CONSOLIDATE	Mark keyed file as consistent.
Syntax:	CONSOLIDATE(#stream)
DELKEY	Delete a key for a record in a key file.
Syntax:	DELKEY #stream [,position] [LOCK lock]
EOF	Give result of end of file test for the given stream.
Syntax:	EOF(#stream)

Turn to Page 81 ▶

Locomotive BASICS

– BASIC 2 for the PC1512 owner

The BASIC 2 on your PC is a very powerful language, capable of producing programs with sophisticated file handling and spectacular graphics. To really get the most out of BASIC 2, you'll need the BASIC 2 User Guide, now in stock in its recently revised edition.

Although the User Guide is essential for a complete knowledge of BASIC 2 an independent book often helps give a greater understanding. We recommend either Rob Ransome's "Using Locomotive BASIC 2 on the Amstrad PC" or Ian Sinclair's "Program your Amstrad PC".

The newly updated version 1.21 of BASIC 2 is now available. This includes minor improvements from the version distributed with the PC1512 and is available at a special upgrade price – either on its own or together with the User Guide.

BASIC 2 User Guide	*£9.95*
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BASIC 2 Upgrade and User Guide	*£14.95*
Using Locomotive BASIC 2 on the Amstrad PC	*£11.95*
Program your Amstrad PC	*£7.95*

– BASIC 2 on other PCs

If you use other IBM compatible PCs as well as Amstrad, you can use BASIC 2 on them too. You can buy BASIC 2 to run on most IBM compatible computers. You'll need a monitor with a graphics card (for example a Hercules adaptor or IBM's EGA) and a mouse. Then all you need is BASIC 2 from Locomotive Systems and GEM from Digital Research. If you can't get GEM for your computer, then Locomotive can help with that too.

BASIC 2 for IBM Compatibles	*£99.00*
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– Alternatives to BASIC 2 on the PC

Not everyone wants to use the full power of GEM, particularly as it takes up so much of the PC's valuable memory.

Locomotive Software also produces another BASIC for the PC – Mallard BASIC. You may, in fact have already used this on Amstrad's PCW. If so, or if you've used conventional BASICs on other PCs, then you'll find it easier to get your non-graphics programs up and running with Mallard than you will using BASIC 2. Indeed if you have programs developed on your PCW, you probably won't have to change them at all!

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– for further information

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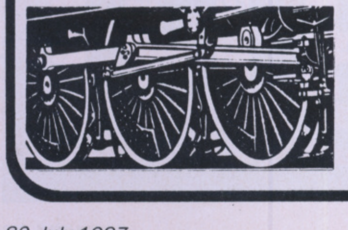

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Basic 2 keywords
Part 2

6) File handling (cont)

GET	Get a record from random or keyed file.
Syntax:	GET #stream, variable$ [position] [LOCK lock]
where position is:	
NEXT	the next record after the current one.
AT number	the specified position.
AT place$	the record specified by place$ which is given by POSITION$ (see below).
KEY	Give current key value in keyed file if index is of numeric type.
Syntax:	number=KEY(#stream)
KEY$	Give current key value in keyed file if index is of string type.
Syntax:	key$=KEY$(#stream)
KEYSPEC	Define an index for a keyed file.
Syntax:	KEYSPEC #stream[,] INDEX numeric-expression [key-type] [UNIQUE ON or OFF]
where key-type is:	BYTE, UBYTE, WORD, UWORD, INTEGER, or FIXED length-string. When *UNIQUE* is ON, keys within an index will be unique.
LOC	Give the record number of current location in the given file.
Syntax:	LOC(#stream)
LOCK	Change a record lock.
Syntax:	LOCK #stream [POSITION] [LOCK lock] LOCK #stream [POSITION] [,lock] See lock in Command Structure (Part 1).
LOF	Give the length of the named file.
Syntax:	filelength=LOF(#stream)
OPEN	Open a serial file.
Syntax:	OPEN #stream INPUT ‘‘Filename’’
Syntax:	OPEN #stream [NEW or OLD] APPEND ‘‘filename’’
Syntax:	OPEN #stream [NEW or OLD] OUTPUT ‘‘filename’’
OPEN	Open a random or keyed access file.
Syntax:	OPEN #stream [NEW or OLD] RANDOM filename [INDEX ‘‘filename’’] LENGTH record-length [LOCK lock]
Example:	OPEN #file NEW RANDOM name$ INDEX idname$ LENGTH 170
POSITION	Set current position in a random or keyed file.
Syntax:	POSITION #stream, position [LOCK lock]
where position is:	
NEXT	the next record after the current one
AT number	the specified position
AT place$	the record specified by place$ which is given by POSITION$ (see below)
POSITION$	Give a string corresponding to the current position in a random or keyed file.
Syntax:	POSITION$(#stream)
PUT	Put data to random access or keyed access file.
Syntax:	PUT #stream, string-expression [position] [LOCK lock]
where position is:	
NEXT	the next record after the current one
AT number	the specified position
AT place$	the record specified by place$ which is given by POSITION$ (see below)

6) File handling (cont)

REPOSITION	Change the current position to another position for the current record.
Syntax:	REPOSITION #stream, position [LOCK lock]
where position is:	
NEXT	the next record after the current one
AT number	the specified position
AT place$	the record specified by place$ which is given by POSITION$
UNIQUE	Give a unique value for the given file.
Syntax:	UNIQUE #stream
Example:	number=UNIQUE #10

7) Mathematical functions

Trigonometric functions will normally use and return angles in radians, unless the OPTION DEGREES command has been given.

ABS	Give the absolute value of a number.
Example:	PRINT ABS (-15)
Result:	15
ACOS	Arc cosine: Calculate the angle corresponding to the given cosine.
Example:	PRINT ACOS (0.5)
Result:	1.04719755
ASIN	Arc sine: Calculate the angle corresponding to the given sine.
Example:	PRINT ASIN (0.5)
Result:	0.523598776
ATAN or ATN	Arc tangent: Calculate the angle corresponding to the given tangent.
Example:	PRINT ATAN (1.5574078)
Result:	1.00000002
CEILING	Round a value up to an integer.
Example:	PRINT CEILING (3.49)
Result:	4
COS	Give the cosine of the given angle.
Example:	PRINT COS (1)
Result:	0.540302306
INT	Round a value to the nearest integer.
Example:	PRINT CINT(3.49);CINT(3.50)
Result:	3 4
DEF	Define an expression function.
Syntax:	DEF FN name[(parameters)] = expression
Example:	DEF FN poly(x)=x^3+x^2+x+1 The definition can be called with FN name[(parameters)].
Example:	PRINT FN poly(3)
Result:	5220

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◀ From Page 81

Basic 2 keywords
Part 2

7) Mathematical functions (cont)

DEG	Give the given angle converted from radians to degrees.
Example:	PRINT DEG (1)
Result:	57.2957795
EXP	Give exponential of numeric value.
Example:	PRINT EXP (1)
Result:	2.71828183
FIX	Round down the number given to an integer.
Example:	PRINT FIX (5.49);FIX (5.95)
Result:	5 5
FRAC	Give the fractal part of a given number.
Example:	PRINT FRAC (15/12)
Result:	0.25
FLOOR	Same as INT.
INT	Round down a number to an integer.
Example:	PRINT INT(-1.7); INT(2.99)
Result:	-2 2
LOG	Give the natural logarithm of the value given.
Example:	PRINT LOG (5.55)
Result:	1.71379793
LOG10	Give the logarithm (to the base 10) of the value given.
Example:	PRINT LOG10 (5.55)
Result:	0.744292983
OPTION DEGREES	Set trigonometric values in Basic2 to work in degrees.
OPTION RADIANS	Set trigonometric values in Basic2 to work in radians.
PI	Give the value of PI.
Example:	PRINT PI
Result:	3.14159265
RAD	Convert an angle in degrees to an angle in radians.
Example:	PRINT RAD (57.2957795)
Result:	1
RANDOMIZE	Randomise the current random number seed.
Syntax:	RANDOMIZE [seed] where seed is TIME or an integer (the default is TIME).
RND	Give the next random number in the sequence. This has two forms. If there is no number following RND the random number is between 0 and 1.
Example:	PRINT RND
Result:	0.308225348
	If a number is specified the random number will be between 1 and the number given.
Example:	PRINT RND(6)
Result:	5
ROUND	Give the given value rounded to the given number of decimal places or power of ten.
Example:	PRINT ROUND (123.4567,2)
Result:	123.46
SGN	Give the sign of a given value.
Example:	PRINT SGN(-5); SGN(0); SGN(20)
Result:	-1 0 1

7) Mathematical functions (cont)

SIN	Give the sine of an angle.
Example:	PRINT SIN (1)
Result:	0.841470985
SQR	Give the square root of a positive value.
Example:	PRINT SQR (4096)
Result:	64
TAN	Give the tangent of an angle.
Example:	PRINT TAN (1)
Result:	1.5574078
TRUNC	Same as FIX.

8) String and character handling

ASC	Give the Ascii value of the character given.
Example:	PRINT ASC (''a'')
Result:	97
BIN$	Give a string of binary digits representing the given value.
Example:	PRINT BIN$ (9)
Result:	1001
CHR$	Give the Ascii character corresponding to the value given.
Example:	PRINT CHR$(97)
Result:	a
DEC$	Give the formatted string representation of the given value.
Example:	PRINT DEC$ (12345.6789,''##,###.##'')
Result:	12,345.68
HEX$	Give a string of hexadecimal digits representing the given value.
Example:	PRINT HEX$ (190)
Result:	BE
INSTR	Give the position of the substring in a given string.
Example:	PRINT INSTR(''Where is it'',''it'')
Result:	10
LEFT$	Give the left hand part of a given string.
Example:	PRINT LEFT$(''Goodbye'',4)
Result:	Good
LEN	Give the length of a given string.
Example:	PRINT LEN (''How long am I?'')
Result:	14
LOWER$	Give the given string converted to lower case.
Example:	PRINT LOWER$ (''CONVERT to LOWER CASE'')
Result:	convert to lower case

Turn to Page 85 ▶

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Basic 2 keywords
Part 2

8) String and character handling (cont)

MID$	Replace or return part of a string
Example:	PRINT MID$("How are you?",5,3)
Result:	are
RIGHT$	Give the right hand part of a given string.
Example:	PRINT RIGHT$("Goodbye",3)
Result:	bye
STR$	Convert a number into its equivalent string representation.
Example:	a$=STR$(1234) PRINT a$+" is a string"
Result:	1234 is a string
STRING$	Produce a string made up of multiple copies of a character.
Example:	PRINT STRING$(10,111)
Result:	oooooooooo
UPPER$	Give the given string converted to upper case.
Example:	PRINT UPPER$ ("upper case")
Result:	UPPER CASE
VAL	Give the numeric value equivalent to the given string.
Example:	a$="123" PRINT VAL(a$)*2
Result:	246
WHOLE$	Give the whole of a fixed length string regardless of any nulls.
Example:	a$=WHOLE$(b$)

9) Operators

There are two types of operators, arithmetic and logical. The arithmetic operators consist of:

+	Plus.
Example:	PRINT 1+2+3+4+5
-	Minus.
Example:	PRINT 100-27
*****	Multiply.
Example:	PRINT 1234*5678
Result:	7006652
/	Divide.
Example:	PRINT 8.5/3.2
Result:	2.65625
\	Integer divide.
Example:	PRINT 8.5|3.2
Result:	3
^	Raise to the power.
Example:	PRINT 2^16
Result:	65536
MOD	The modulus: Give the remainder after integer division.
Example:	PRINT 12 MOD 5
Result:	2

The logical operators give the result of bit by bit combinations of integer numbers. They consist of:

AND	Set bits to 1 only if they are 1 in both numbers.
Example:	PRINT BIN$(&X1100 AND &X1010)
Result:	1000
NOT	A unary operator which inverts each bit in a value.
Example:	PRINT BIN$(&X1010)

9) Operators (cont)

Result:	11111111111111111111111111110101 Note the 32 bit result
OR	Set bits to 1 if one or both values are set.
Example:	PRINT BIN$(&X1100 OR &X1010)
Result:	1110
XOR	Set bits to 1 if only one of the values is 1
Example:	PRINT BIN$(&X1100 XOR &X1010)
Result:	110

10) Error handling

ALERT	
Syntax:	Display an alert box on the screen. ALERT icon TEXT "text"[,"more text"] BUTTON [RETURN] "button_text1" [,"button_text2"..] where the icon number is 0 for no icon, 1 for the Note icon, 2 for the Wait icon and 3 for the Stop icon.
Example:	result=ALERT 1 TEXT "This is a warning message","Acknowledge by clicking","the mouse over OK" BUTTON RETURN " OK ","Not OK" The value of result will depend on which 'button' was pressed.
ERR	Give the error number.
Example:	result=ERR
ERROR	Simulate an error condition.
Syntax:	ERROR error–number
Example:	ERROR (105)
Action:	produces a Division by Zero error.
ERROR$	Give the error message for a given error number
Example:	PRINT ERROR$(4)
Result:	Syntax error
ON ERROR GOTO	Enable or disable error trap
Syntax:	ON ERROR GOTO location
or:	ON ERROR GOTO 0 The latter switches error redirection off.
OSERR	Give the operating system error code.
Example:	result=OSERR
RESUME	Resume running a program after processing an error.
Syntax:	RESUME: Resume with the statement which caused the error.
Syntax:	RESUME location: Resume program running at the specified location.
Syntax:	RESUME NEXT: Resume running with the statement after the one which caused the error.

Next month in the final part of this series we'll be covering windows, graphics and miscellaneous commands.

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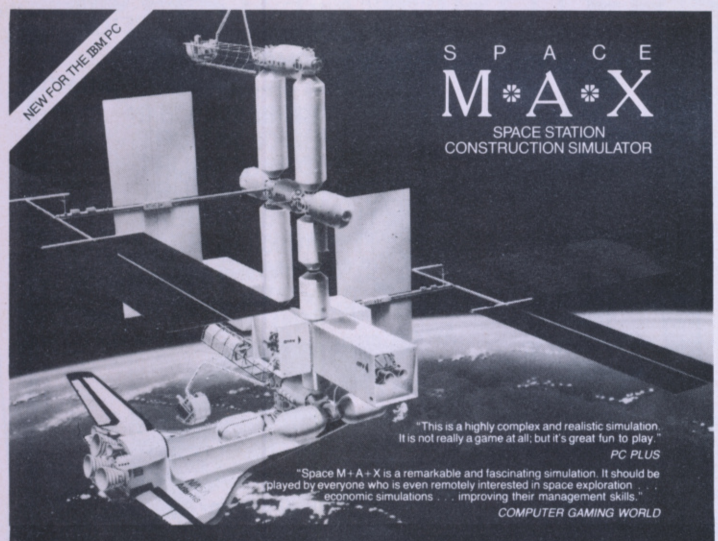

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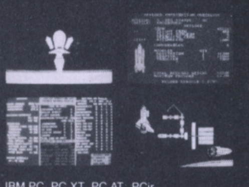

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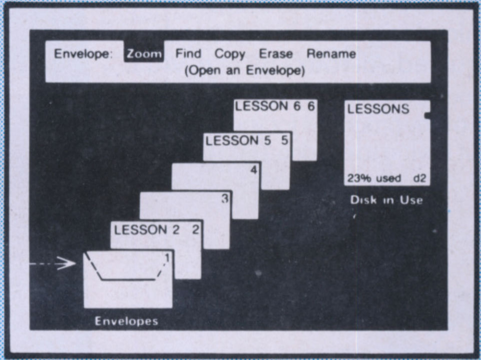

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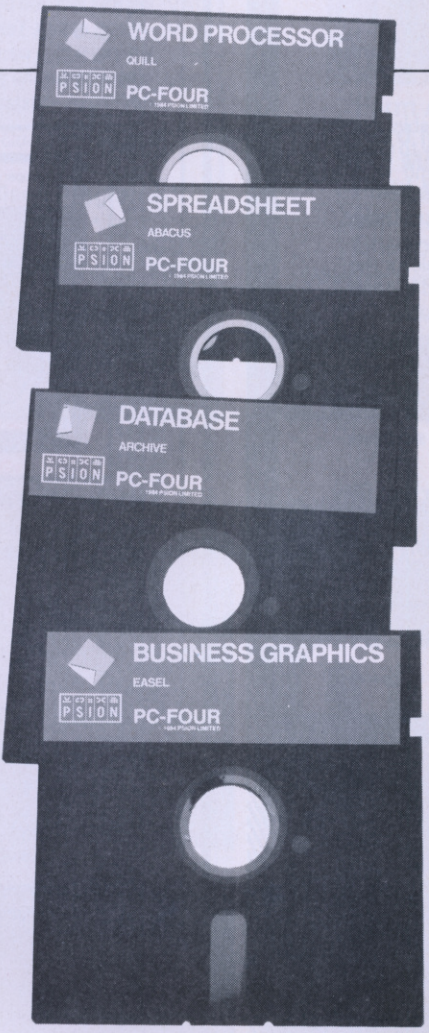

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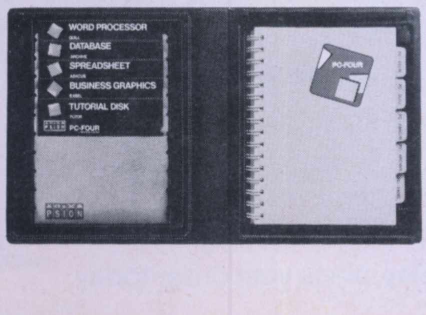

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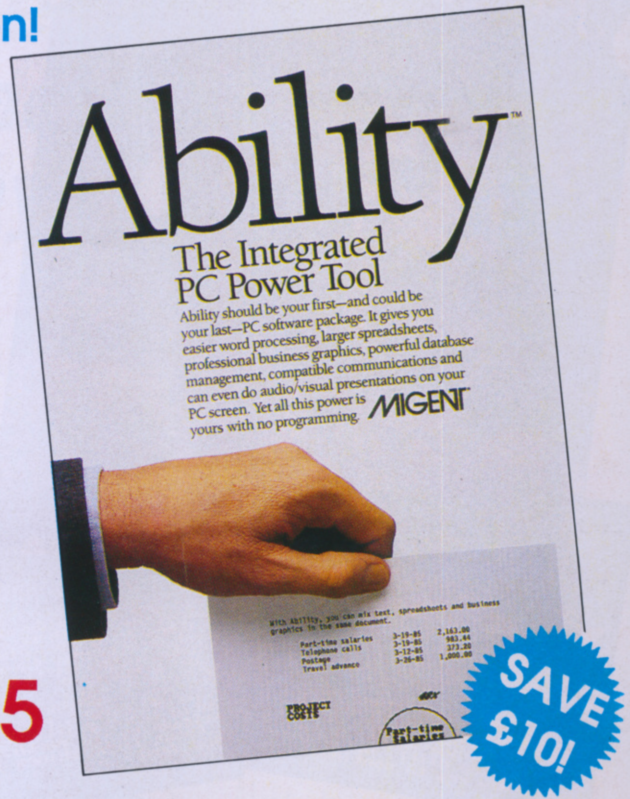
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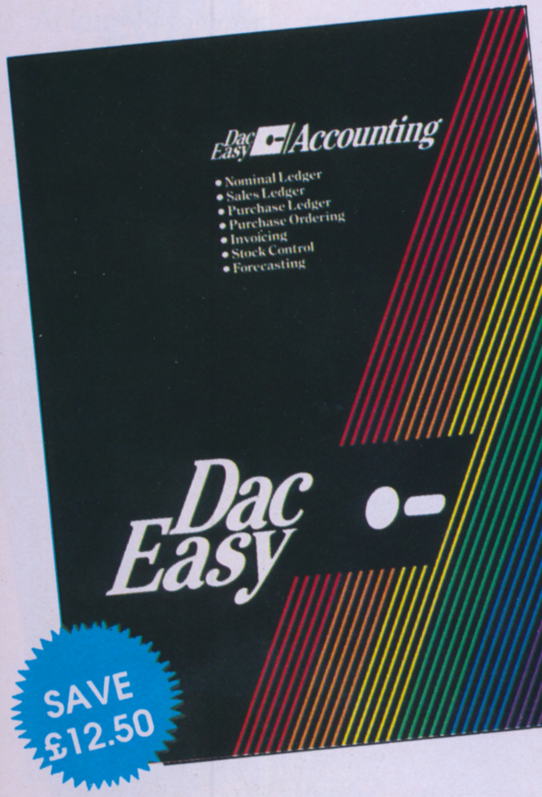
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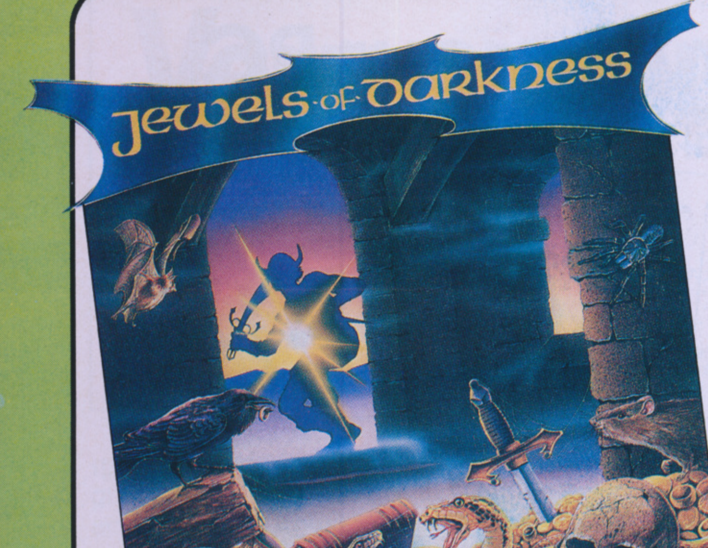

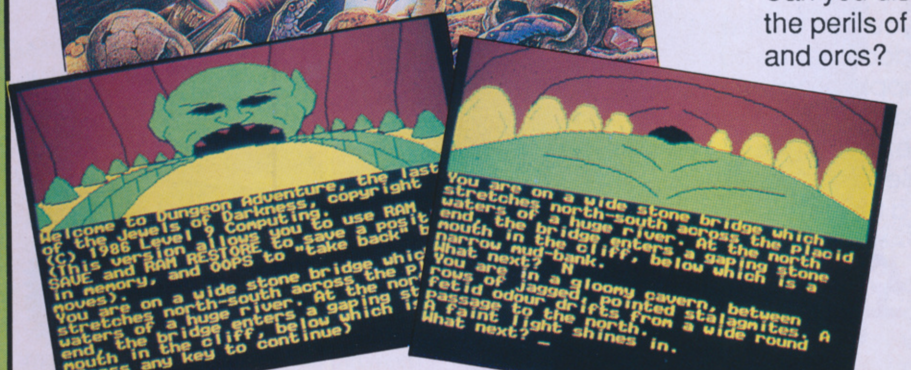

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SAVE and RAM RESTORE to save a posit
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stretches north-south across the P
waters of a huge river. At the nor
end, the bridge enters a gaping st
mouth in the cliff, below which i
(Press any key to continue)
```

```
You are on a wide stone bridge which
stretches north-south across the placid
waters of a huge river. At the north
end, the bridge enters a gaping stone
mouth in the cliff, below which is a
narrow mud-bank.
What next? N
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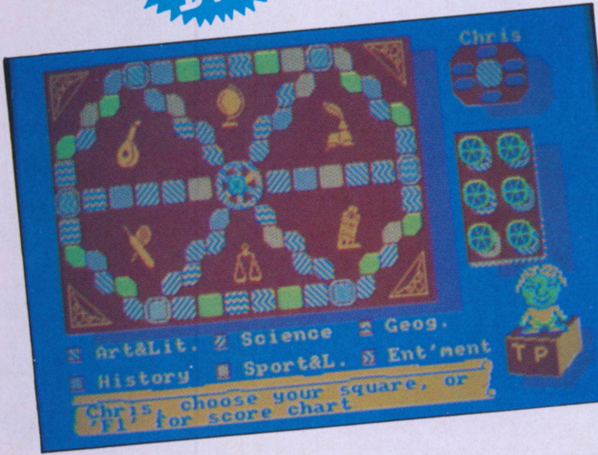
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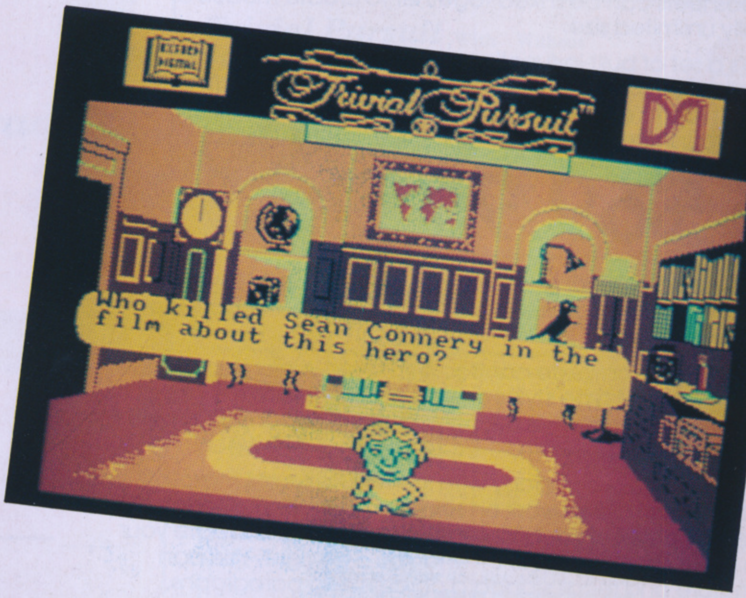
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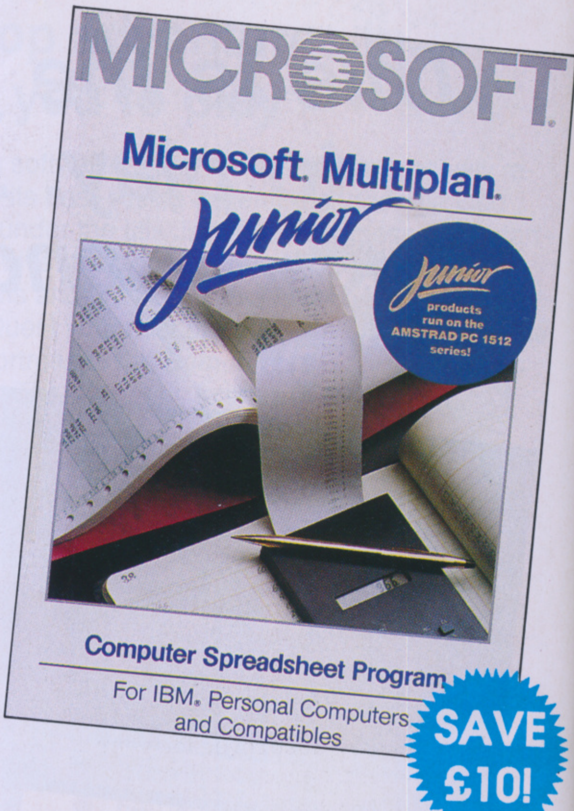
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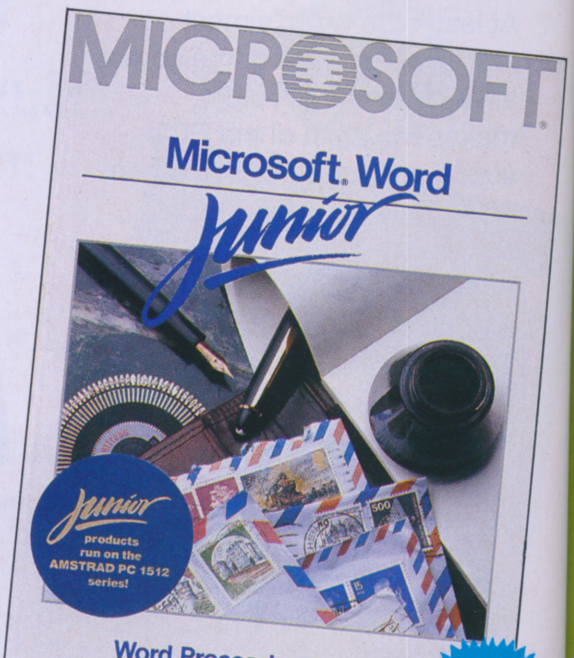
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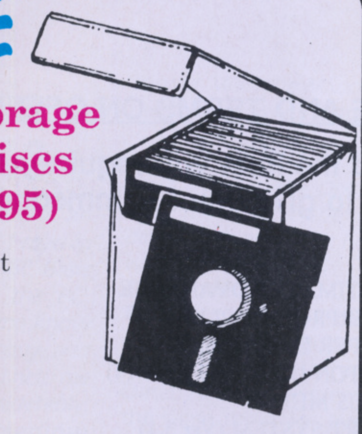

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PCA 7

: INPUT

BBC Basic for PC1512

I HAVE recently bought an Amstrad PC1512, and I read in your first issue that a BBC Basic is now available for the PC. Could you please let me know where I can obtain a copy, and the price, as this would help me in my schoolwork considerably. – **K.A. Gillham, Henlow Camp, Bedfordshire.**

● You can get BBC Basic from M-TEC Computer Services, Ollands Road, Reepham, Norfolk (Tel: 0603 870620) for approximately £110. Expensive, but worth it as you'll see if you read our review in the June issue.

It actually emulates BBC Basic 4, which gives you access to structures like ON...PROC. You'll find the graphics somewhat different, but apart from that unavoidable deviation the implementation is remarkably full – there's even an 8086 assembler in it.

Files lost overboard

I DON'T want to put myself in contention for the "PC1512-owning idiot of the year" contest but I've frequently managed to erase all the files in the wrong directory.

Suppose my current directory is JUNE and the sub-directory I want to clear the files from is WEEK1. With the inevitability of a lemming drawn to cliffsides I check the contents of WEEK1 with:

```
DIR WEEK1
```

and then, having ascertained that I do indeed want to wipe these files, I enter:

```
ERASE *.*
```

and rashly reply Y to the prompt. Only then, of course, do I realise that I am in JUNE, and haven't actually changed directory to WEEK1, so the files I'm wiping are in JUNE. Disaster! At last I've found the answer. With the MSdos disc in the default drive I simply enter:

```
PROMPT $P$G
```

From then on the Dos prompt tells me which the current directory is and even I can't go wrong. – **R.A. Jones, Amersham, Bucks.**

● Don't worry – there's a micro magazine editor not a million miles away from us at Database who frequently does the same thing. He even once managed to use your technique to wipe all the files off the root directory of a colleague's hard disc – most annoying!

Maintenance contract

THE Amstrad PC which I bought had a large notice affixed which said that a hard-disc maintenance contract was essential, and enclosed was a Dictaphone Company service agreement proposal form. This said that storage media was excluded.

Since the whole point was maintenance of storage media, I wrote to Dictaphone asking for confirmation that the exclusion related to floppies, and that the hard disc was covered. I also asked if a loan machine was provided if on-site repair was not practicable.

That was over a month ago, and there has been no reply. – **D.E.Loverseed, Stockport, Cheshire.**

● The Dictaphone agreement does cover hard discs – and the service agreement is being changed to make this clearer. What Dictaphone cannot do, however, is guarantee the data on your disc will be recovered – it's up to you to keep adequate backups.

The company does not provide loan machines, since the majority of calls result in an immediate repair.

Dynamic snag

HAVING recently bought an Amstrad PC1512 I am interested in the launch of your new magazine, and I look forward to hearing more about what I can and cannot do with my new toy.

One of the main reasons for the purchase was to provide myself with a computer for solving equations in dynamics, making use of the Locomotive Basic2 provided. But in the process of writing my first program I hit upon a snag in that the answers to some simple arithmetic turned out to be wrong.

I am in communication with Amstrad on the matter and I hope that someone there – or Locomotive Software – will come up with a correction before very long.

I feel you may be particularly interested in the problem since you have embarked upon a series of articles on Basic2. Maybe you should alert your readers to the problem, but better still provide them with an answer if/when Amstrad come up with one.

The problem is that the Basic2 provided with the Amstrad PC fails to give the correct answer when asked to perform a simple arithmetic calculation of the form:

```
a*b + c*d
```

*If **a** is a negative whole number (integer) and **b=0**, or vice versa, the answer should clearly be **c*d**. But try it!*

Use the Dialogue Screen and enter, for example:

```
?-1*0 + .2*.5
```

*The answer returned is 0 rather than 0.1. Try some other values of **c** and **d**, covering positive, negative, integers and decimals and you will be surprised how the simple arithmetic has been corrupted. It is not just a matter of unwanted rounding off.*

The fault is present when this form of arithmetic is included in a program.

I have some suggestions for ways round the problem, but not yet evaluated. However, the only real solution is to put Basic2 right. – **P.W. Fortescue, Eastleigh, Hants.**

● It sounds like you've been using version 1.12. Since then the problems have been corrected in version 1.12A and subsequently version 1.12B.

So how do you get hold of version 1.12B? Simple – just run the PATCH programs on this month's free disc.

Welcome guidance

AS an over-age Amstrad PC1512 "green field" beginner, I found John Porter's introductory survival guide most useful and very encouraging in that it has an approach to instruction apparently lacking, at least for my generation.

I am a subscriber and will therefore read his further guidance in due course but wonder if he has published his series or if I can obtain "further encounters" with the 1512 in his style. With many thanks. – **J.F. White, Louth, Lincolnshire.**

● Nice writer, isn't he? Unfortunately John is a very busy man holding down a full-time

Turn to Page 96 ▶

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◀ From Page 95

job as well as taking a part-time degree in computer science, so he hasn't the time to do much more than write the one easy-to-follow article a month.

Invoking services

I LIKE the new PC magazine! But I think I may have found an error in the graphics program of issue one of PCA. On page 49 it says "exists via the MSdos function 31H". In the program it says INT 21H. Is this right? Can you use DEBUG to enter it? – **D.F. Papworth.**

● You had us worried there for a minute. No, there's no mistake. Most MSdos operating system services are invoked through INT 21H. In fact there are 99 in all for MSdos 3.0, so MSdos needs some way of distinguishing which you want to invoke.

Each service has a unique function number, which goes into AH – the high byte of AX – before the interrupt. Iolo Davidson was using function 31H – terminate and stay resident – so the code was:

```
MOV AX,3100H
INT 21
```

As for whether the code can be entered through DEBUG, the answer is "Yes, by using the A option". But we wouldn't like to do it – handling the branches needs careful calculation or cunning organisation of the program in memory since you haven't got labels like an assembler provides.

Fortunately, you won't have to bother in this case, since this month's *PCA* disc contains Pinch and Punch, two utilities which incorporate and far surpass Capture and Display.

View from a window

*PLEASE excuse the language, but **** the Mouse, **** the Menus, **** the Windows, in fact **** it all. Is there any way to make Locomotive Basic 2 work without all this ****ing about?*

What I want to do is to write a program on to one screen and then run it.

If this is not possible, are there any other Basics available to do this?

Come back BBC Micro. All is forgiven. – **P.C. Hackett, Ilford, Essex.**

● You could always try M-TEC's version of BBC Basic, full details of which are in the reply to Mr Gillham's letter.

Admittedly, Basic2's windows are a bit awkward to use at first, but persevere and you'll soon get the hang of them. It would be a shame to miss out on a language with the power of Basic2 because of minor problems like this.

One tip that might come in handy when you're debugging your programs: Using ? for PRINT makes sure your messages get to the dialogue screen irrespective of the stream or window you're currently in. This means that you can keep track of where you're going with lines like:

```
?"I am here and count is";
count:STOP
```

When you reach this "breakpoint" CONT will let you continue. ■

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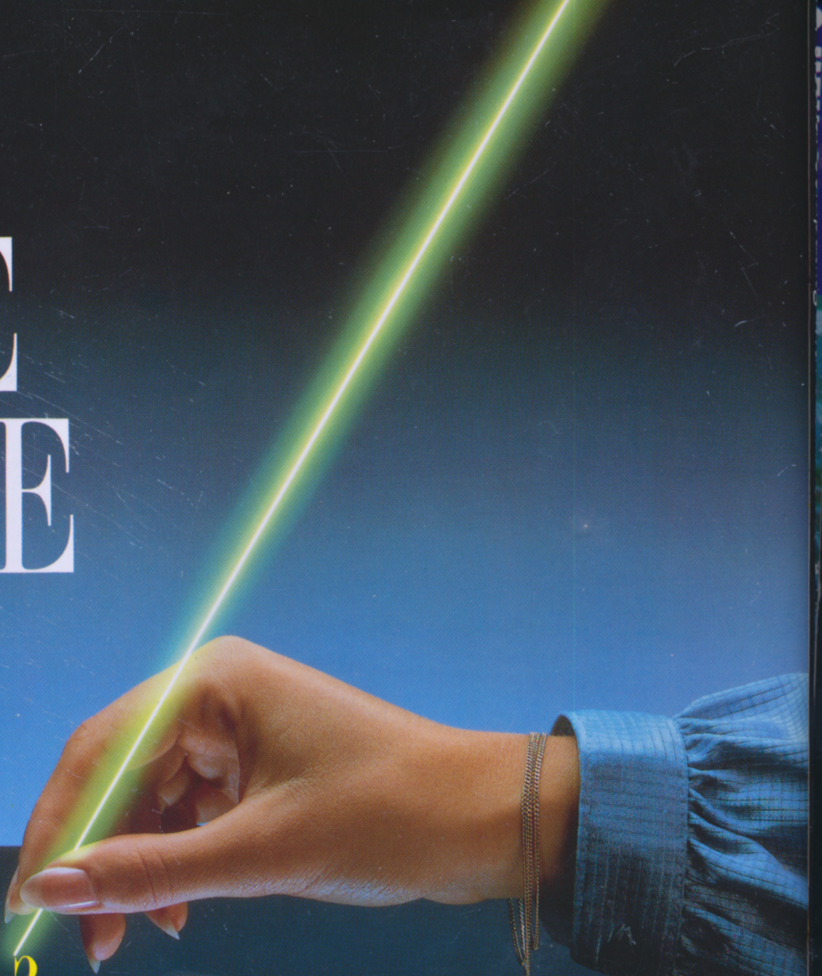

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